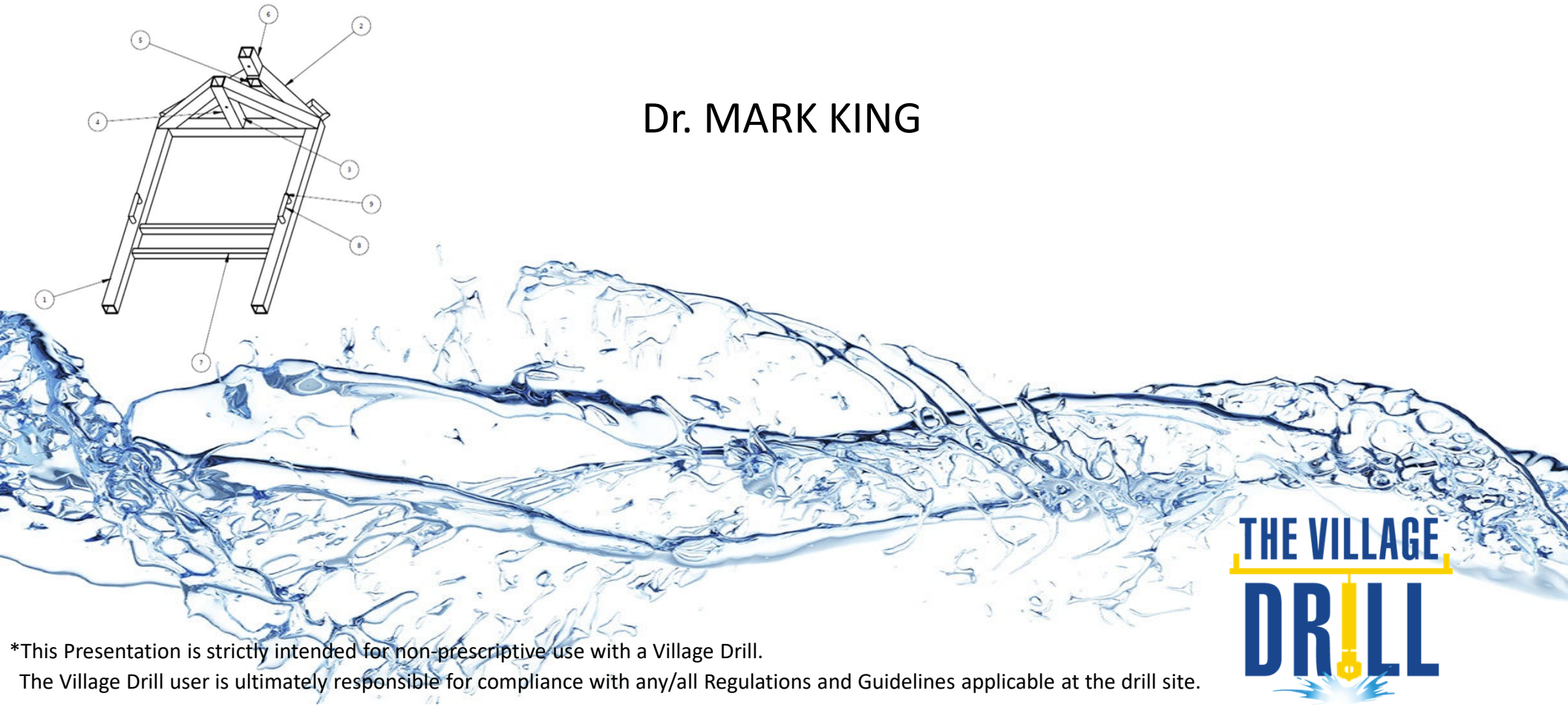


# SETTING UP THE VILLAGE DRILL

Dr. MARK KING



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# Assembling the Drill & Setting up Drill Site



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# Assembling the Drill & Setting up Drill Site

## RECEIVING THE VILLAGE DRILL

The purchasing Group will receive two lists, that you should review with them, at start-up, to make sure everything is present:

1. Review and compare the Village Drill “Packing List” Document
  - As you unpack the crate, use the “Packing List” PDF to check off all items received.
2. Review the items from “Additional Site Items” Document
  - The Group should have purchased these items before your arrival
  - If there is anything missing you should instruct them to get it to the drill site immediately

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# Assembling the Drill & Setting up Drill Site

## RECEIVING YOUR VILLAGE DRILL

3. Study “Overall Assembly” Document
  - This will help you understand how to assemble the Village Drill with step-by-step pictures and instructions.
4. Watch <https://vimeo.com/119279289> The Village Drill - A New Standard
  - See the assembly and understand the “Why”



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# Assembling the Drill & Setting up Drill Site

The Group should purchase (local) all items listed below (estimated cost: U\$300 - U\$500 total)

- Drinking Container (20 liters)
- Tarp (3m x 3m)
- Plastic Sheet (2m x 6m)
- 5 – 20 Large Buckets
- 1 Set of Wrenches (17+ pieces)
- 1 Large and 1 Small Funnel
- Machete
- Plastic Food Strainer (6" - 10" diameter)
- 8 Rubber Straps (1" x 3')
- Spirit Level (8")
- ¼" Wire Screening (1m x 1m - for pump intake)
- Plastic Brush (for grease)
- 1 Flat and 1 Cross (Phillips) Screwdriver
- Wheel Barrow
- Measuring Tape (25' or 10 meters)
- Pliers (for wire cutting)
- ¼" Nylon Rope (75m - 100 m) (cont.)

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# Assembling the Drill & Setting up Drill Site

## Recommended Items (continued)

- 1 Shovel
- 1 Hoe
- 1 Pick
- Water Tank (500 liters)
- 10 Pairs of Gloves
- Petro/Gasoline Container (20 liters)
- Steel Wire Brush
- Hacksaw (with 10 blades)
- Teflon Tape (10 spools)
- 1 Hammer
- Cement Trawl (3 pieces)
- 1" Clear Syphon Hose (10m)
- 1 Tent (for sleep and security)
- 8" Adjustable Wrench/Spanner
- Optional Pump Replacement Parts
- Additional Bags of Bentonite or Polymers

## WELL DEVELOPMENT TOOLS

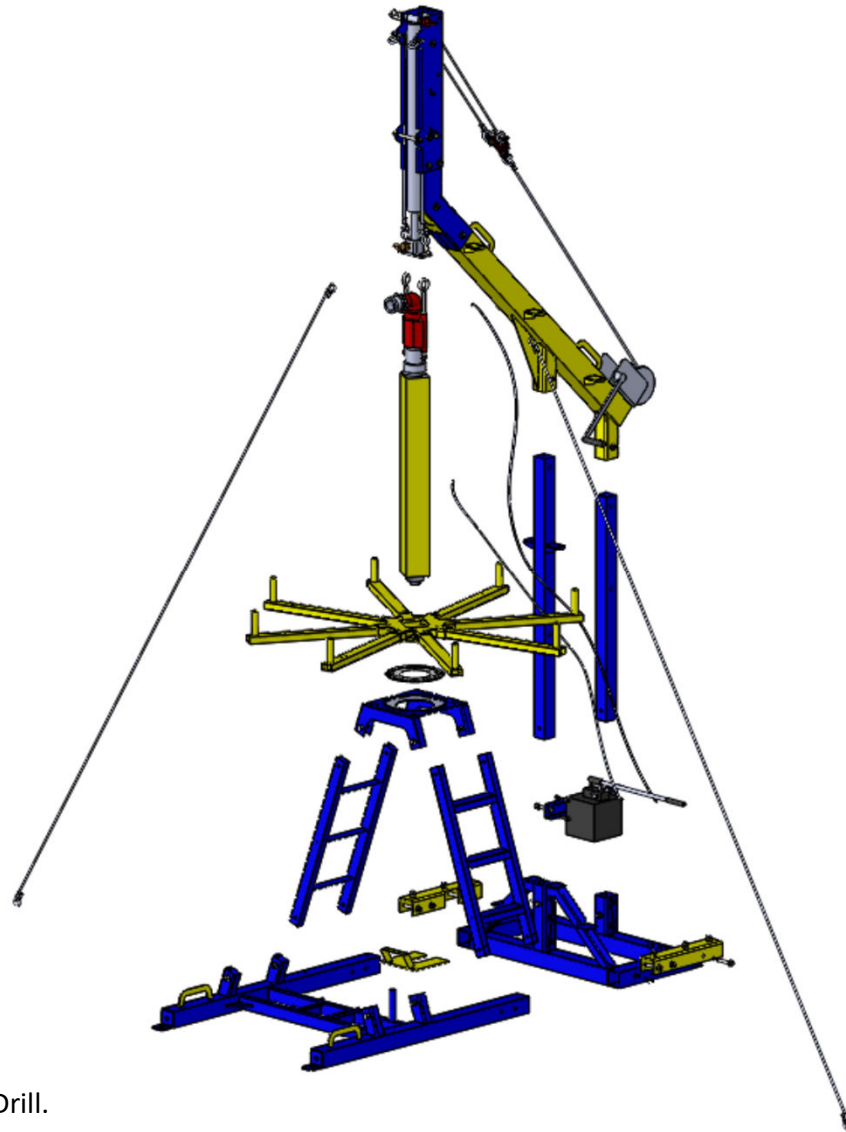
- Submersible Electric Pump (3-inch diameter) for developing borehole: U\$300 – U\$500
- Generator (borrow, rent, purchase) with sufficient power to run submersible pump: U\$600 – U\$1200

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# DRILL ASSEMBLY

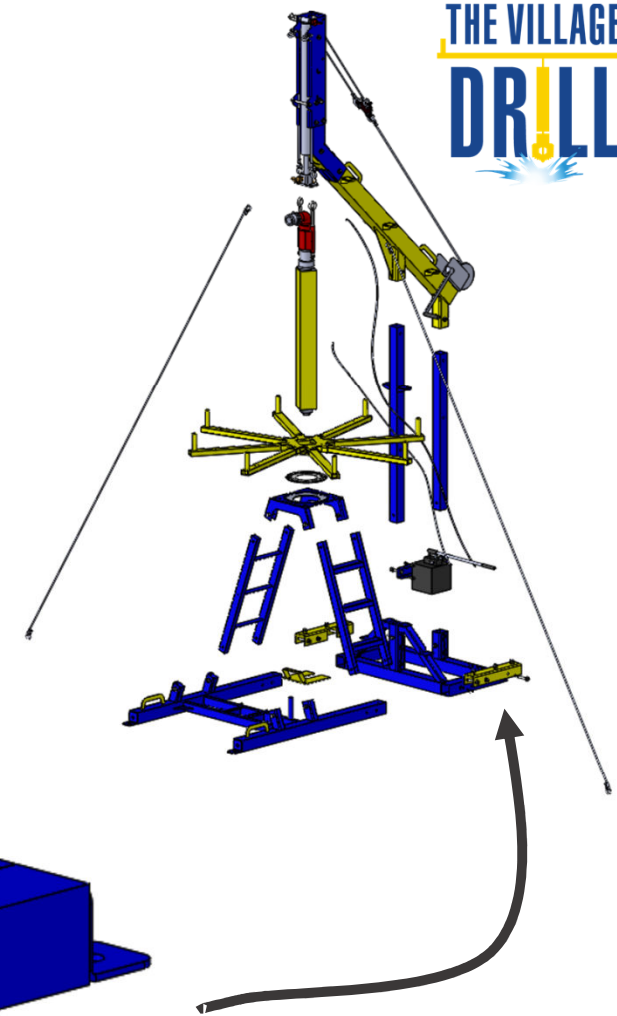
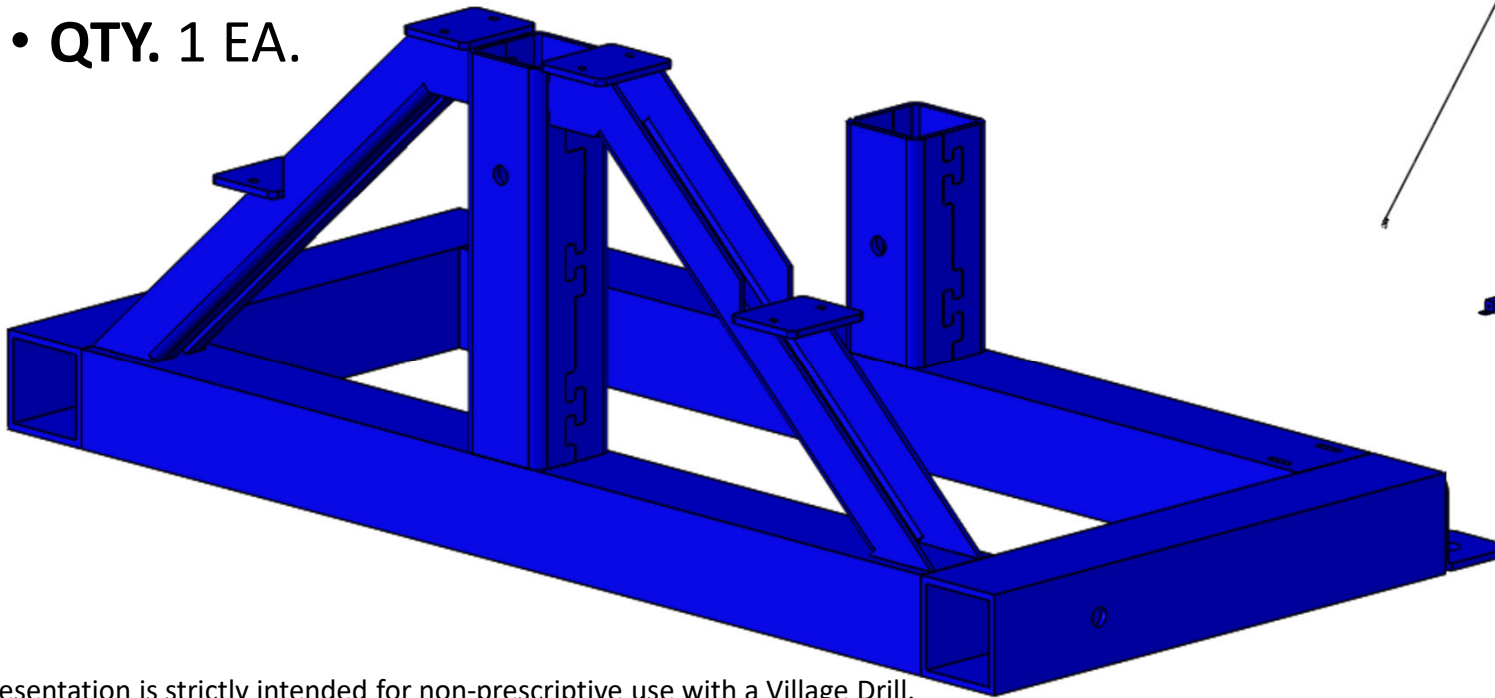
(based on most recent version)



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# DRILL OVERALL ASSEMBLY

- REAR BASE
- **PART NO. 1.0**
- **QTY. 1 EA.**

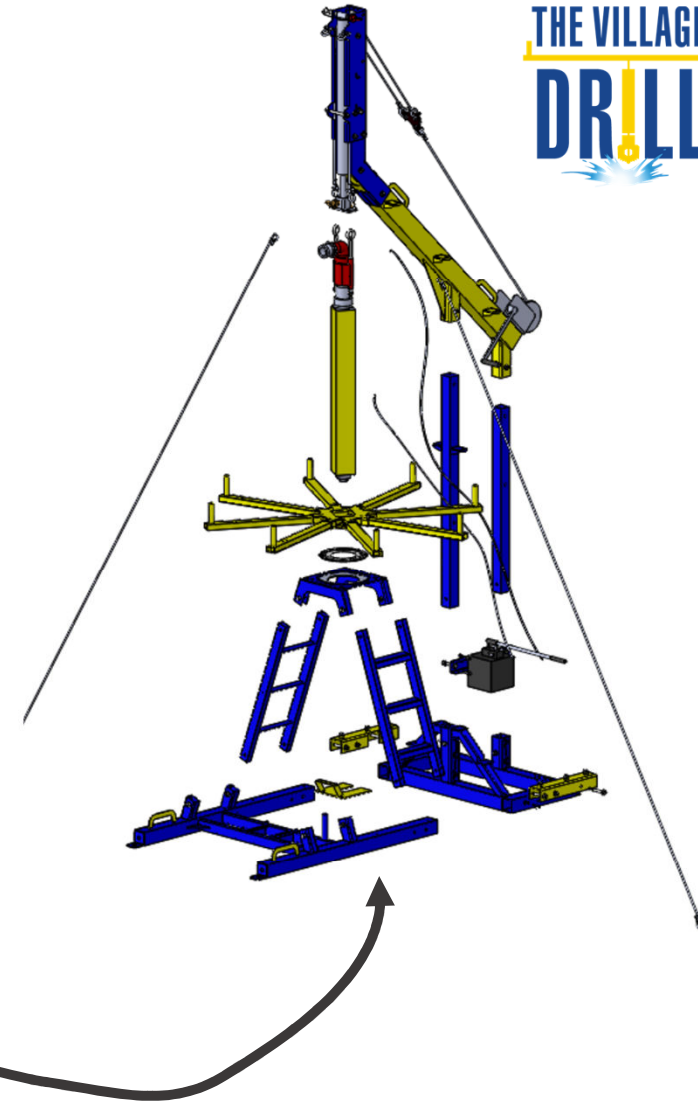
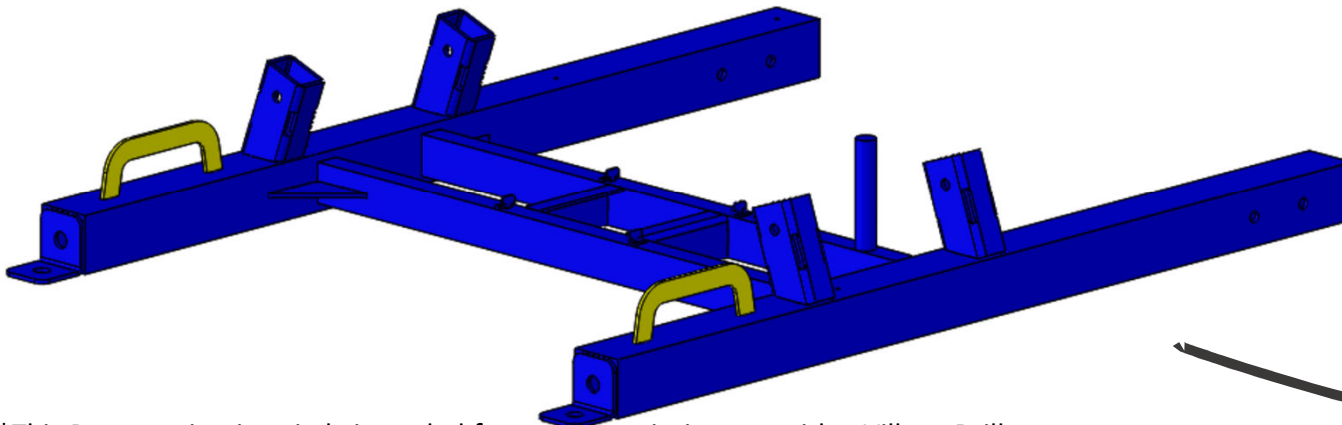


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# DRILL OVERALL ASSEMBLY

- FRONT BASE
- PART NO. 2.0
- QTY. 1 EA.

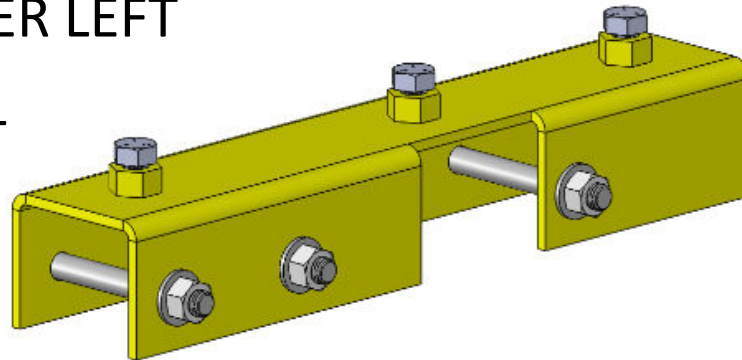


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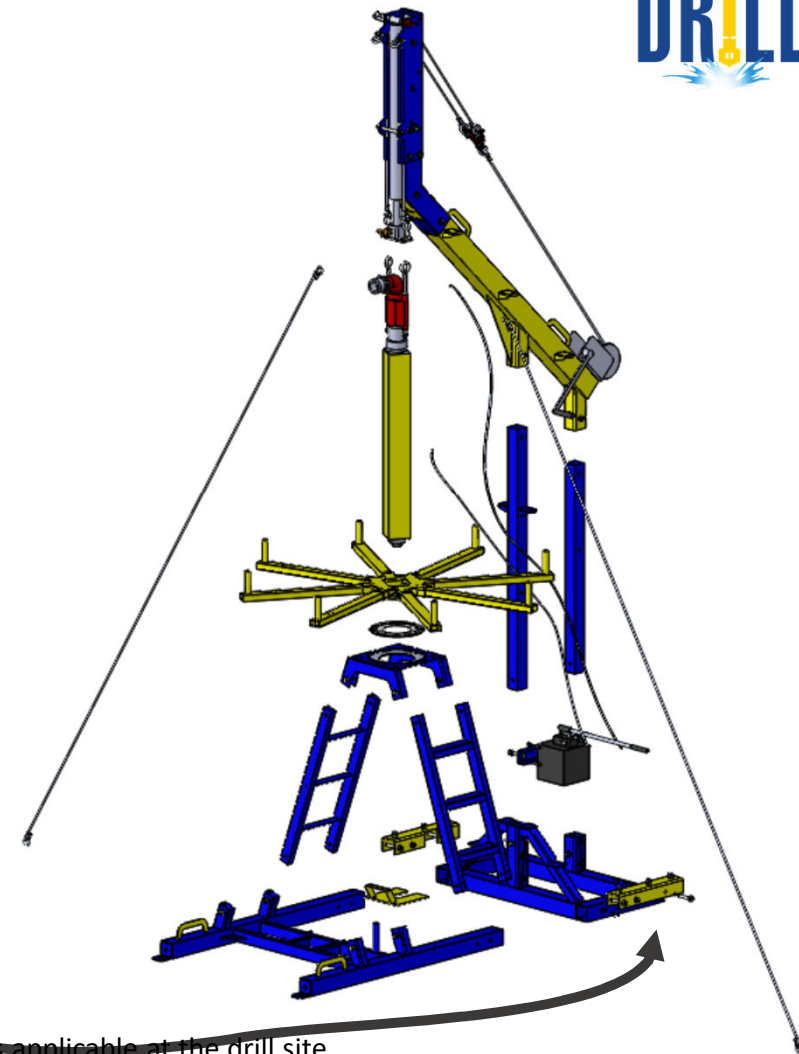
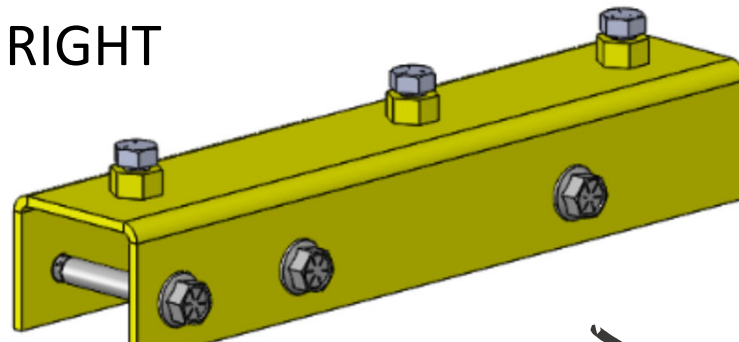
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# DRILL OVERALL ASSEMBLY

- BASE COUPLER LEFT
- **PART NO. 3.1**
- **QTY. 1 EA.**



- BASE COUPLE RIGHT
- **PART NO. 3.2**
- **QTY. 1 EA.**

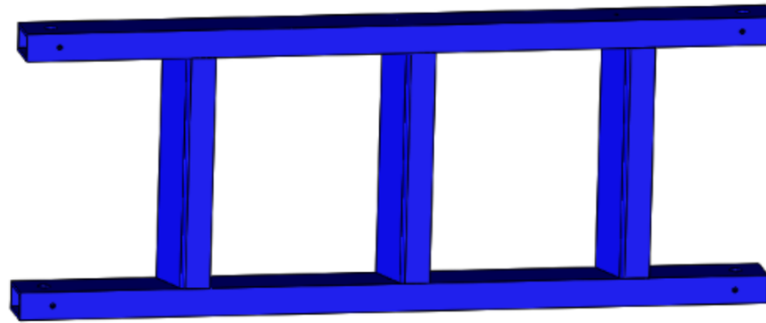


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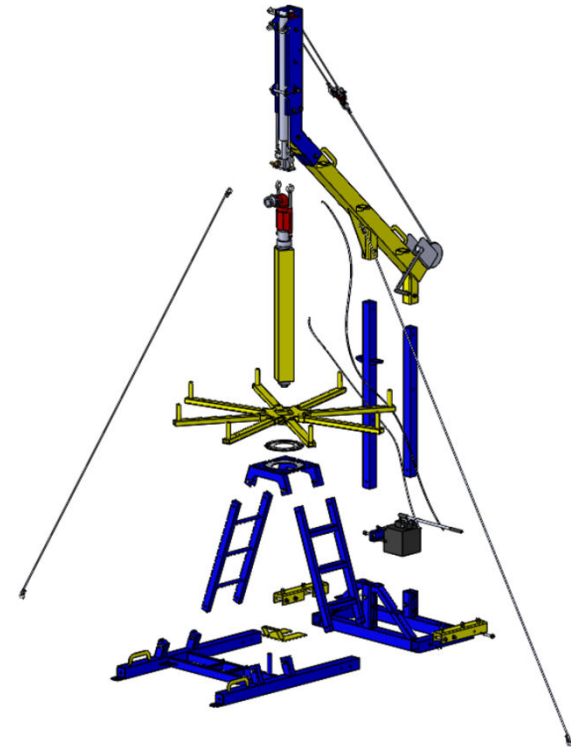
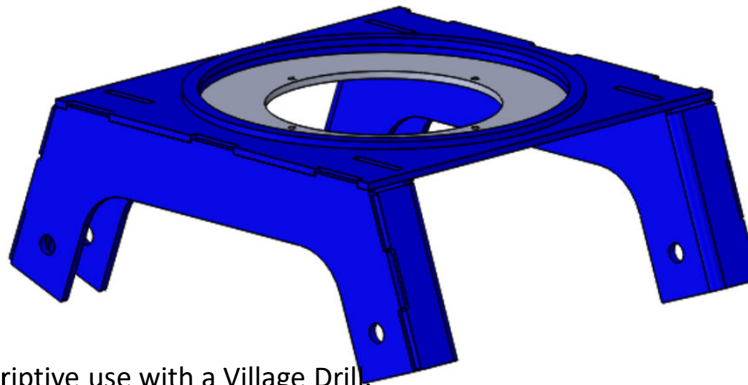
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# DRILL OVERALL ASSEMBLY

- LADDER
- **PART NO. 4.0**
- **QTY. 2 EA.**



- BEARING SUPPORT
- **PART NO. 5.0**
- **QTY. 1 EA.**

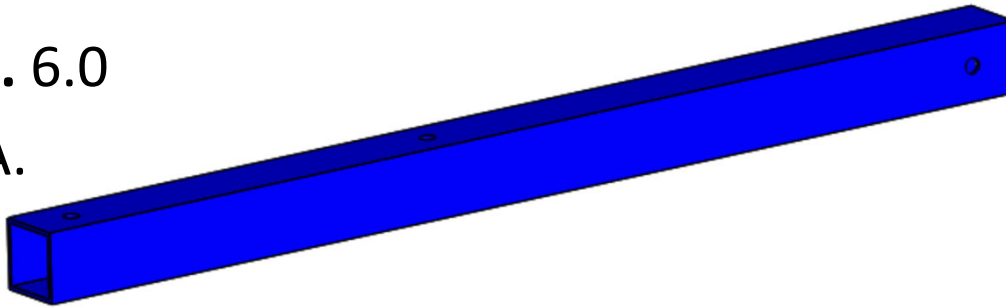


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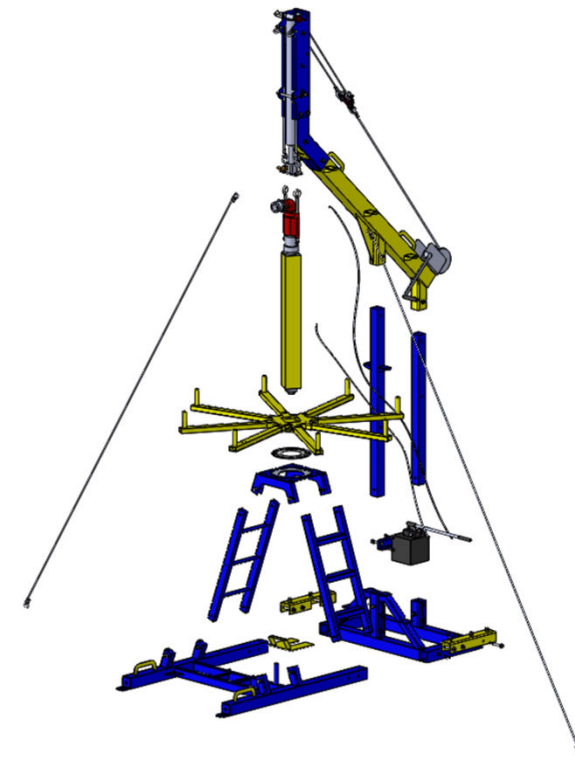
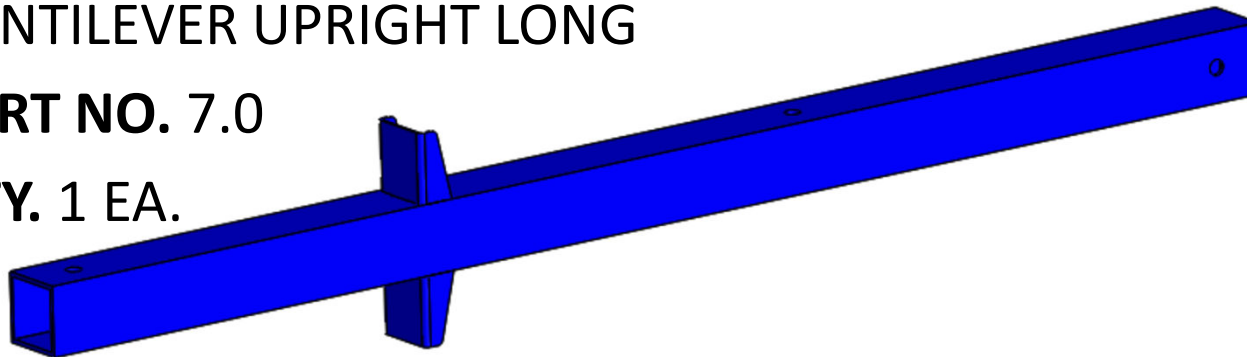
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# DRILL OVERALL ASSEMBLY

- CANTILEVER UPRIGHT SHORT
- **PART NO. 6.0**
- **QTY. 1 EA.**



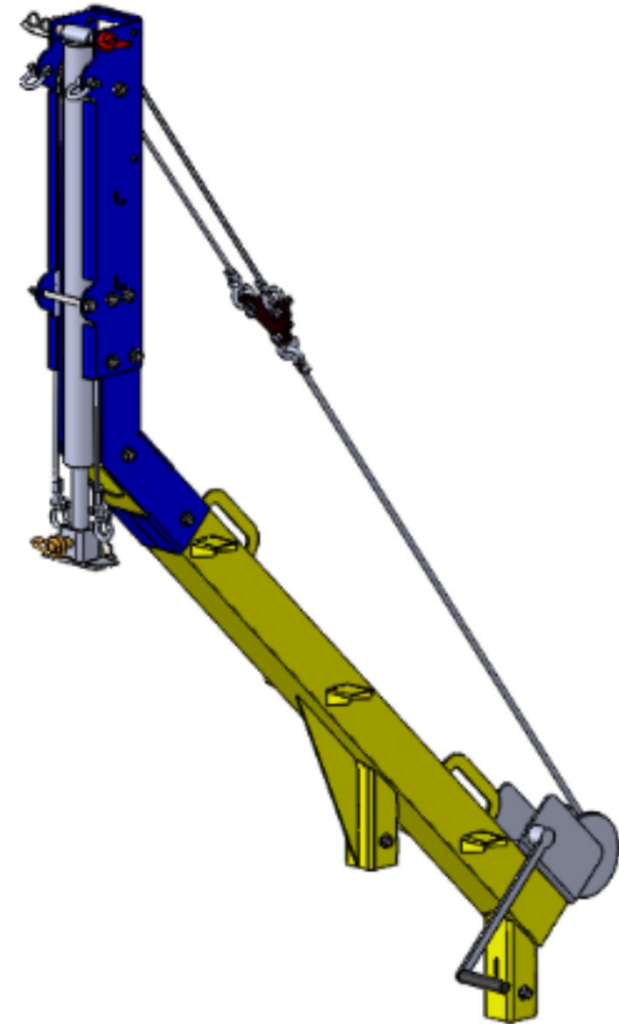
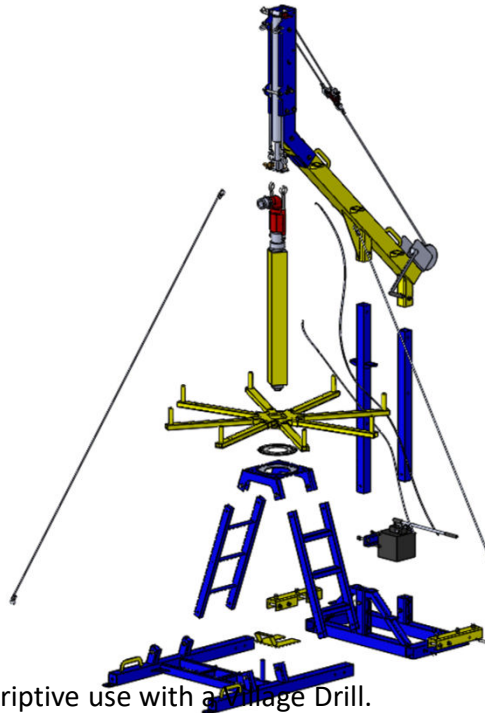
- CANTILEVER UPRIGHT LONG
- **PART NO. 7.0**
- **QTY. 1 EA.**



drill site.

# DRILL OVERALL ASSEMBLY

- CANTILEVER ASSEMBLY KIT
- **PART NO. 8.0**
- **QTY. 1 EA.**

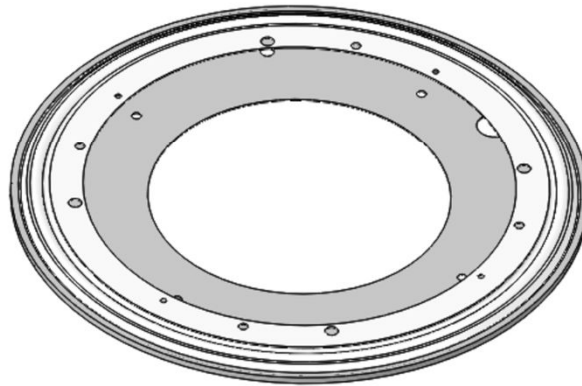


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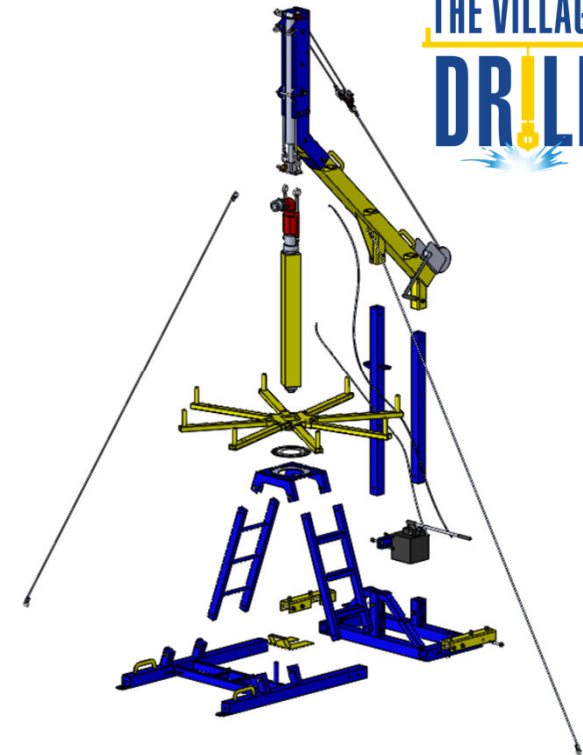
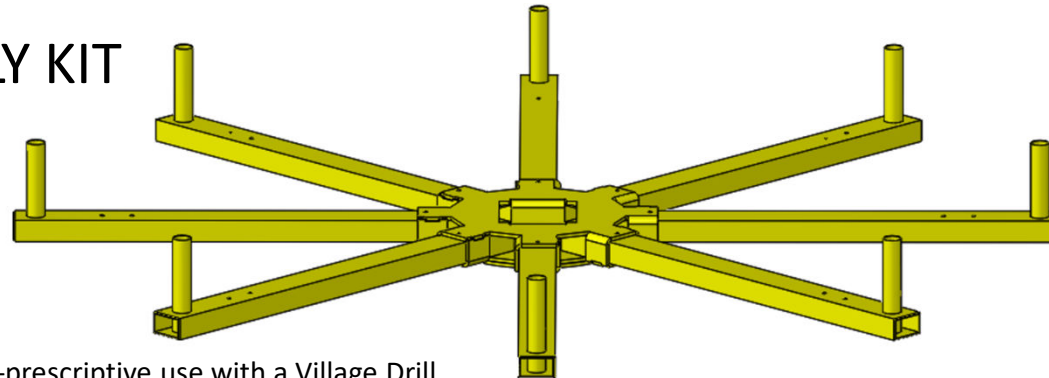
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# DRILL OVERALL ASSEMBLY

- BEARING
- **PART NO. 9.0**
- **QTY. 5 EA.**



- WHEEL ASSEMBLY KIT
- **PART NO. 10.0**
- **QTY. 1 EA.**

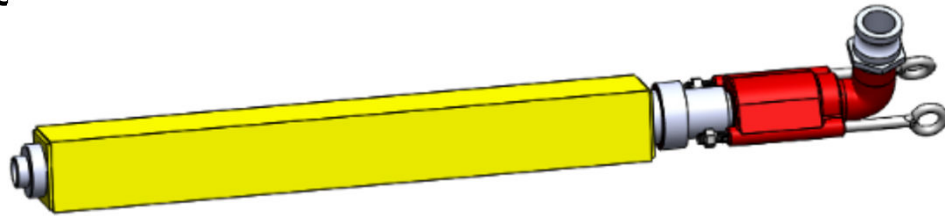


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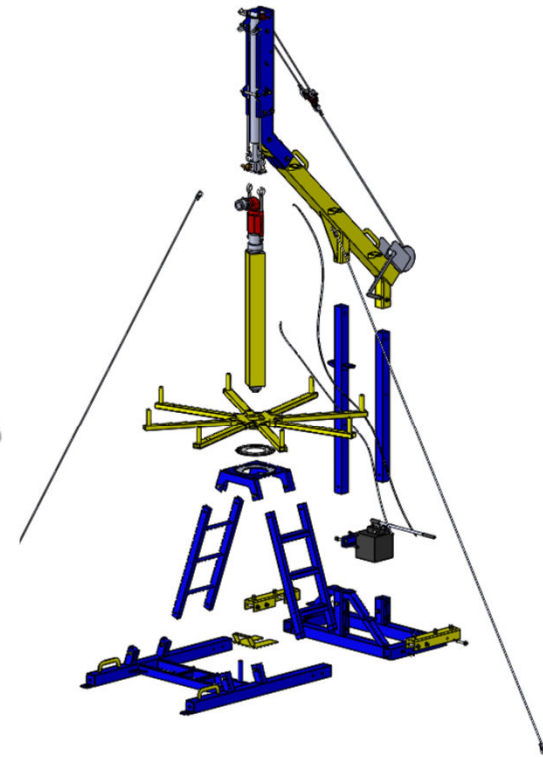
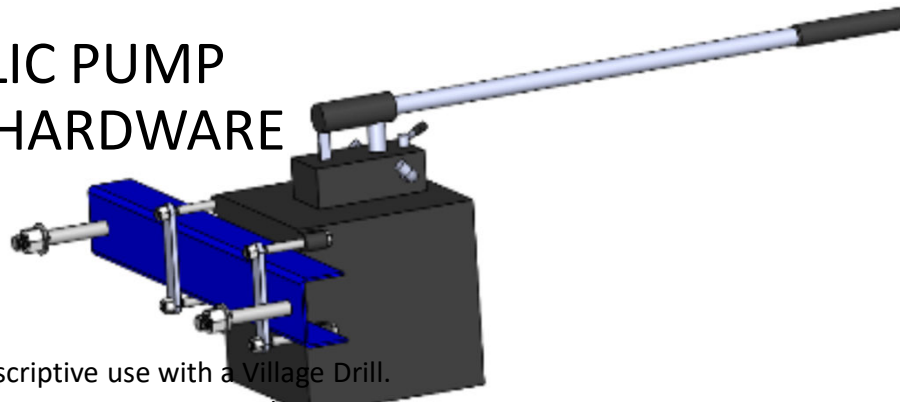
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# DRILL OVERALL ASSEMBLY

- KELLY BAR
- **PART NO. 11.0**
- **QTY. 5 EA.**



- MANUAL HYDRAULIC PUMP  
WITH MOUNTING HARDWARE
- **PART NO. 12.0**
- **QTY. 1 EA.**



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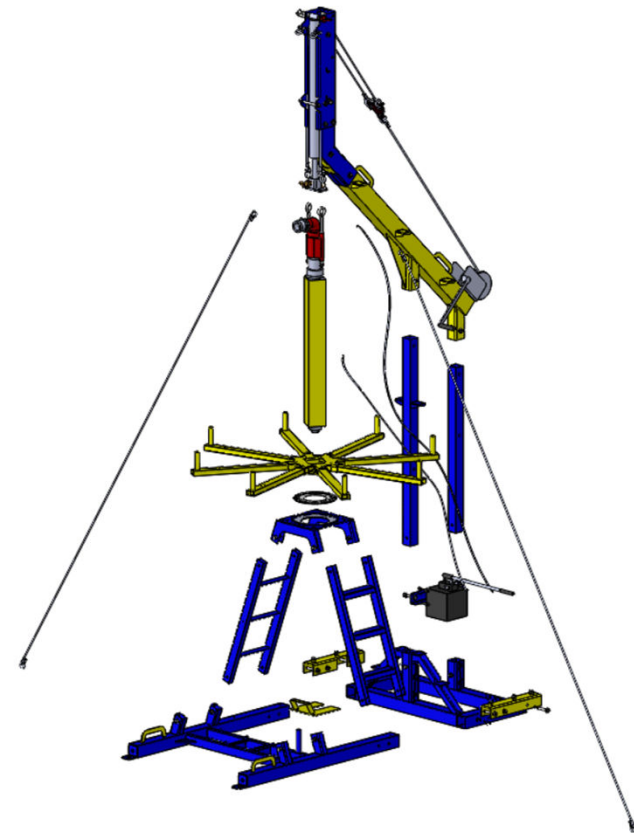
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# DRILL OVERALL ASSEMBLY

- LONG HYDRAULIC CYLINDER HOSE
- **PART NO. 13.0**
- **QTY. 1 EA.**



- SHORT HYDRAULIC CYLINDER HOSE
- **PART NO. 14.0**
- **QTY. 1 EA.**

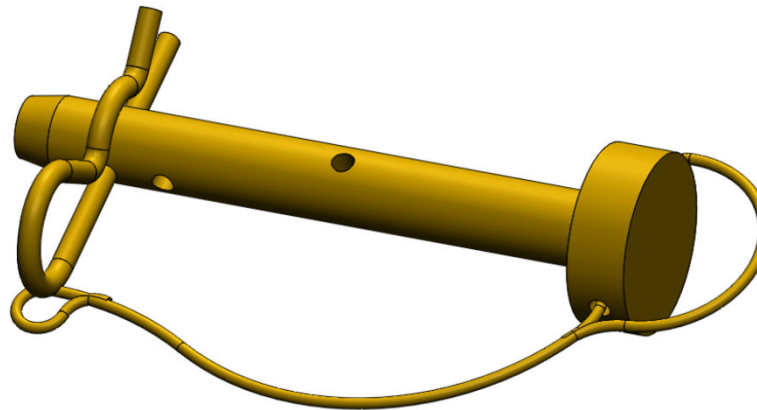


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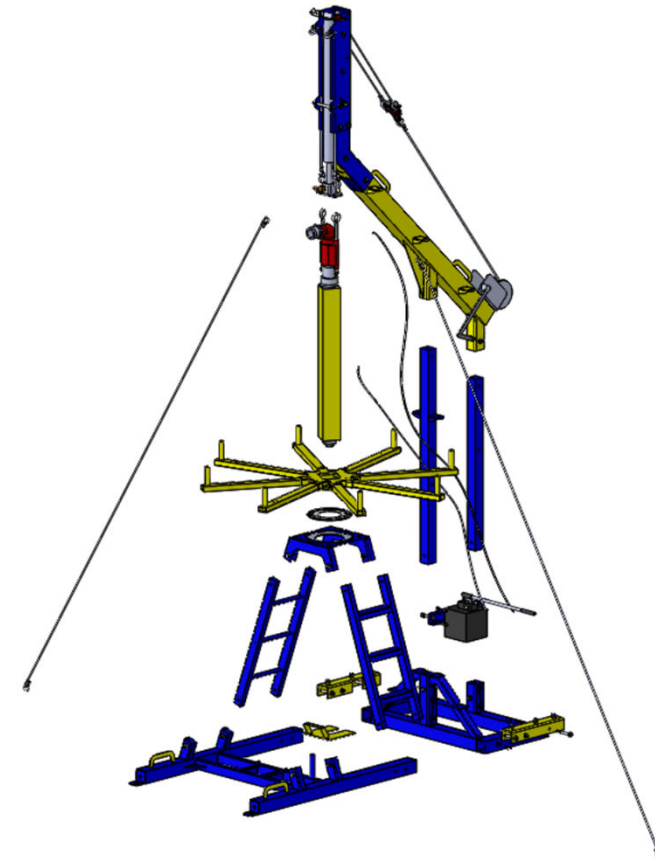
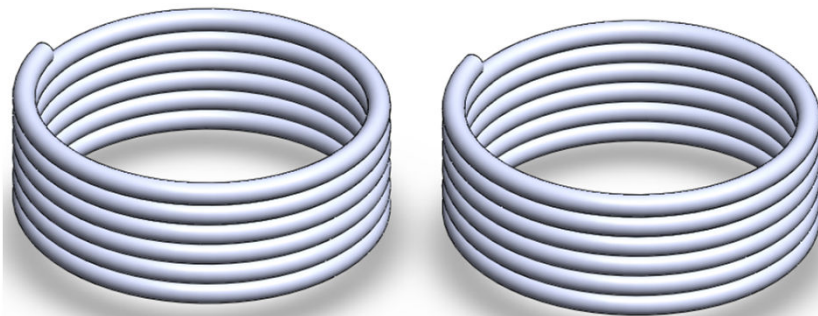
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# DRILL OVERALL ASSEMBLY

- PIN
- **PART NO. 15.0**
- **QTY. 18 EA.**



- GUIDE CABLES
- **PART NO. 16.0**
- **QTY. 2 EA.**



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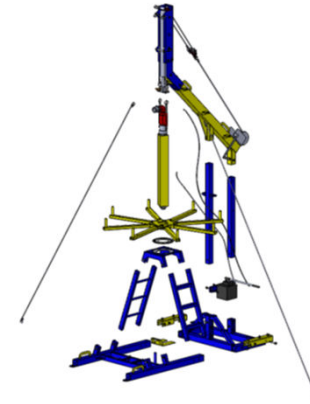
# BASE ASSEMBLY

- 

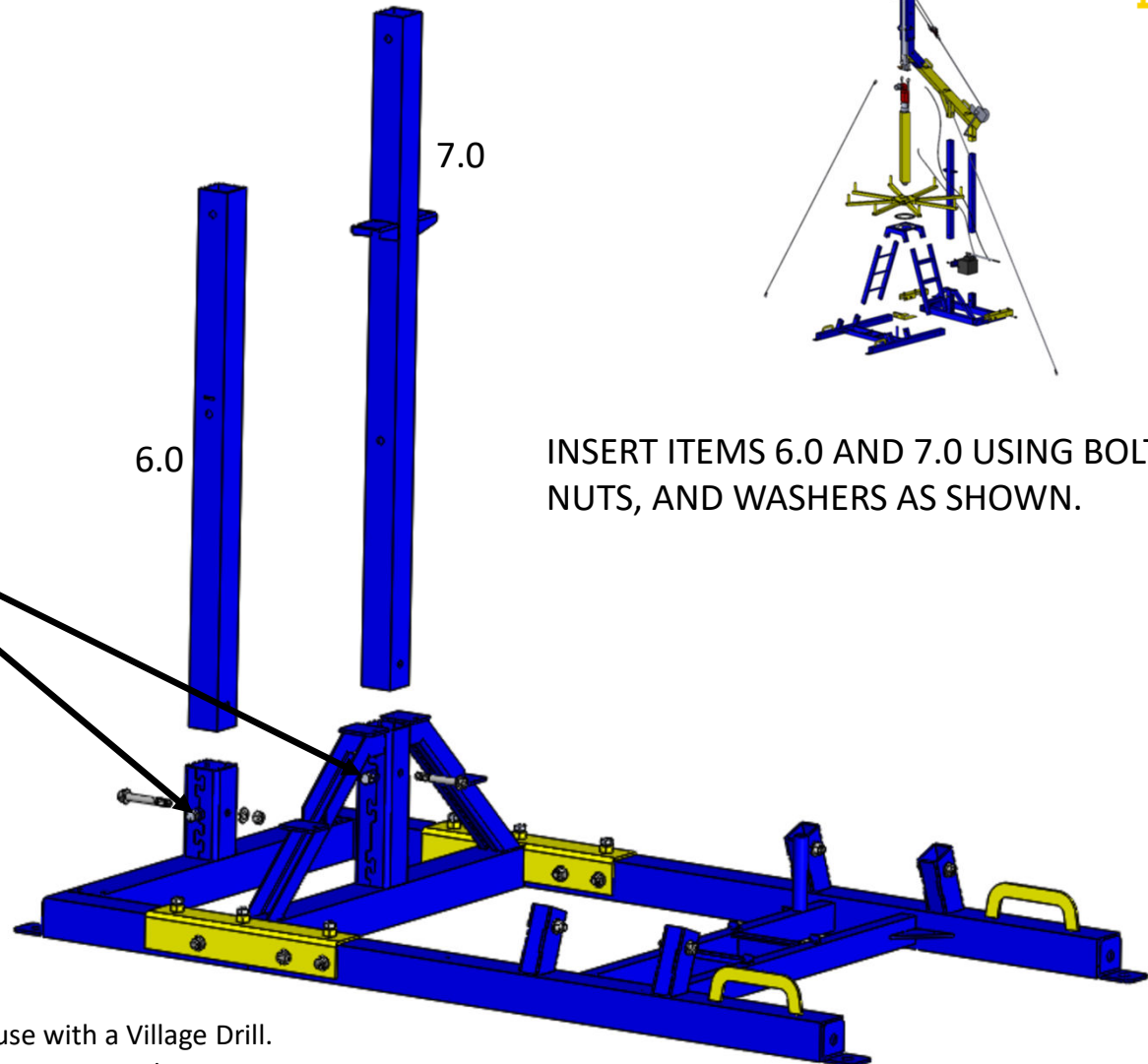
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# ASSEMBLY

## BASE ASSEMBLY



TIGHTEN BOLTS FIRST



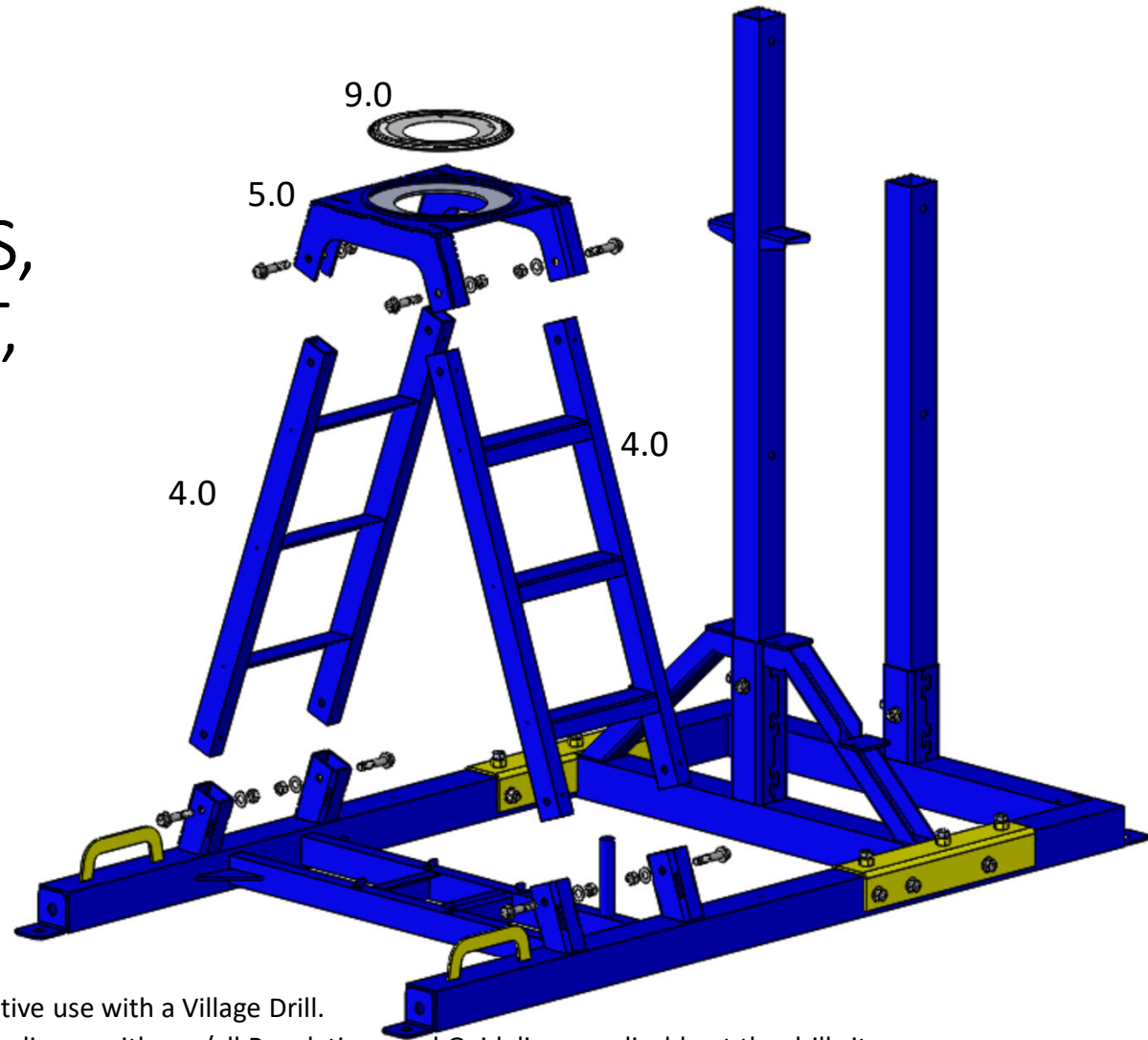
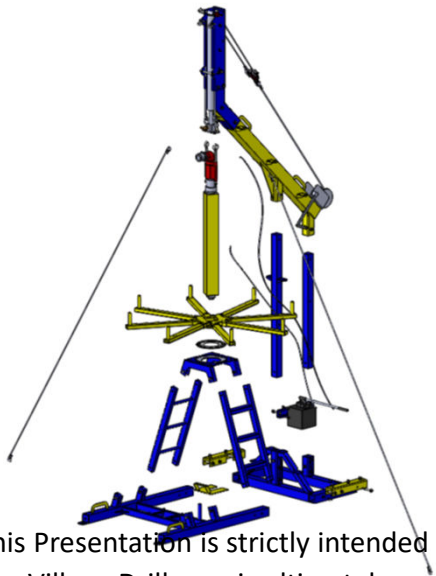
INSERT ITEMS 6.0 AND 7.0 USING BOLTS,  
NUTS, AND WASHERS AS SHOWN.

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# ASSEMBLY

INSTALL LADDERS,  
WHEEL SUPPORT,  
AND BEARING

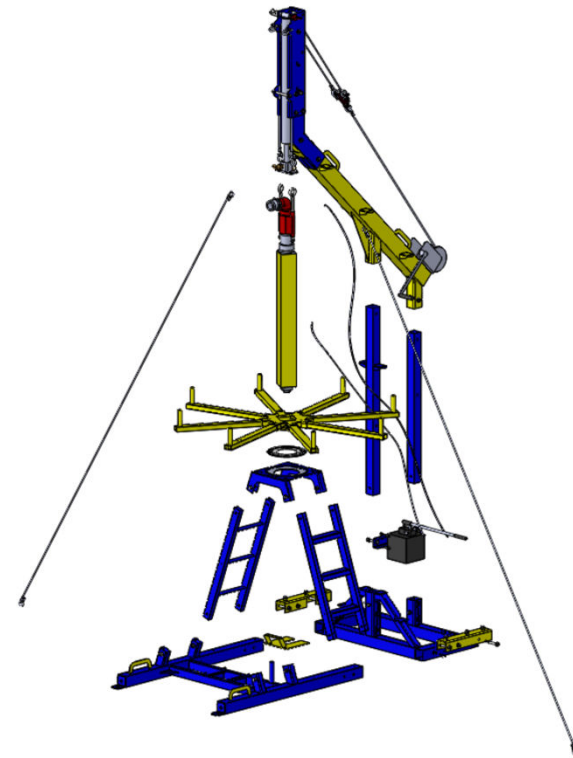
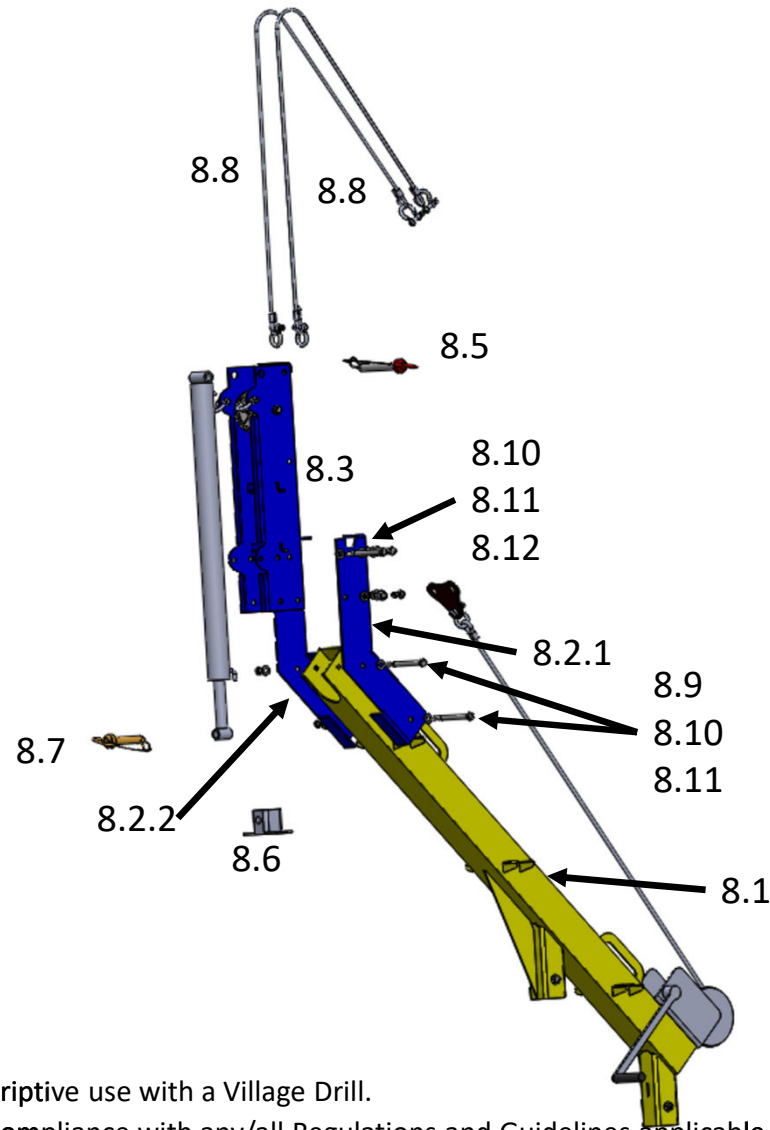


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# ASSEMBLY

## BUILD CANTILEVER ASSEMBLY

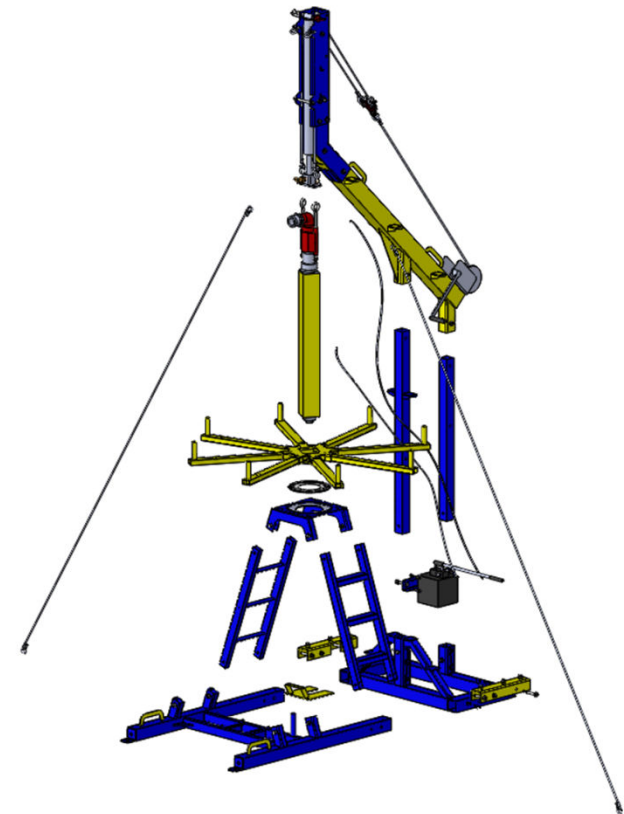
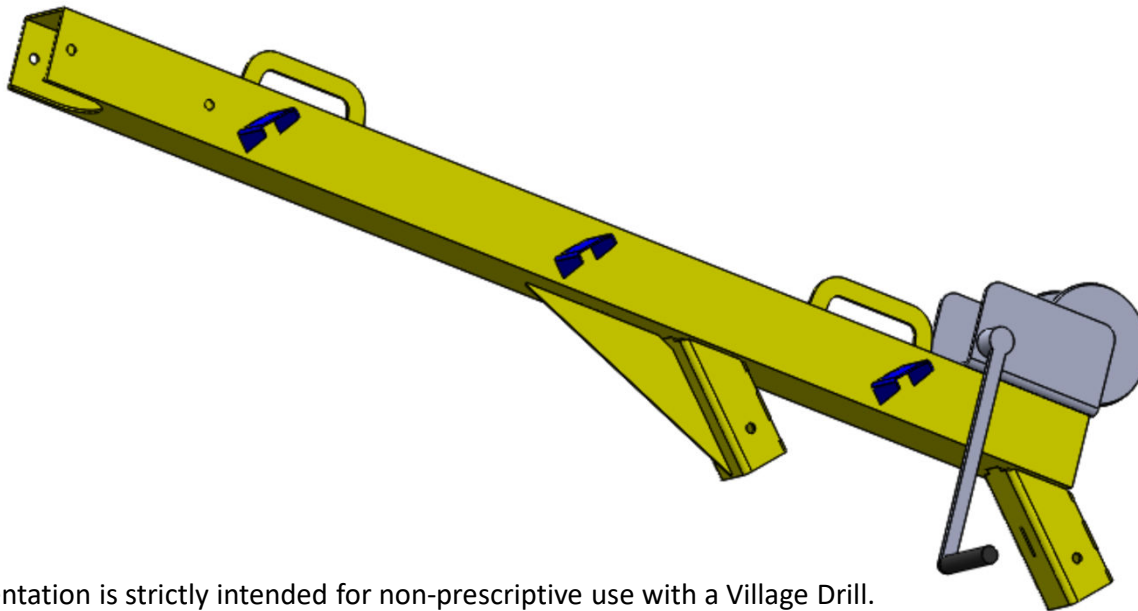


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# CANTILEVER ASSEMBLY KIT

- CANTILEVER ARM W/WINCH
- **PART NO. 8.1**
- **QTY. 1 EA.**

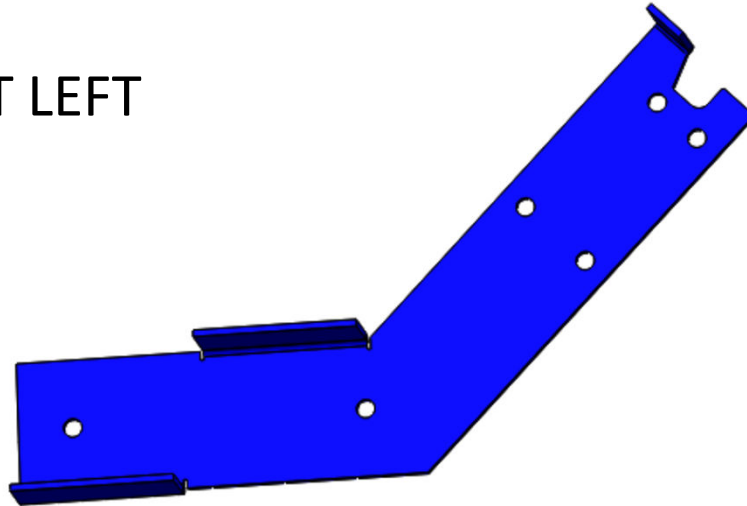


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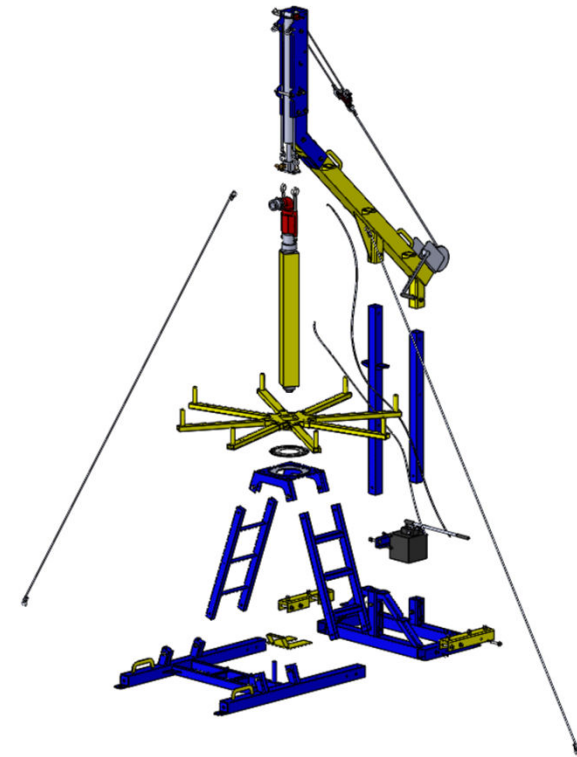
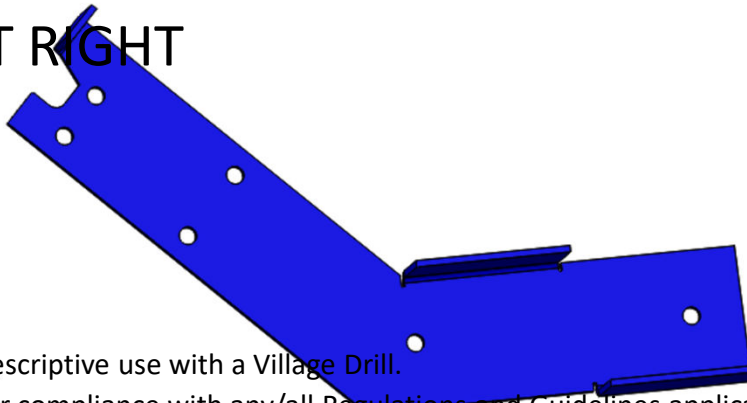
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# CANTILEVER ASSEMBLY KIT

- UPRIGHT SUPPORT LEFT
- **PART NO. 8.2.1**
- **QTY. 1 EA.**



- UPRIGHT SUPPORT RIGHT
- **PART NO. 8.2.2**
- **QTY. 1 EA.**

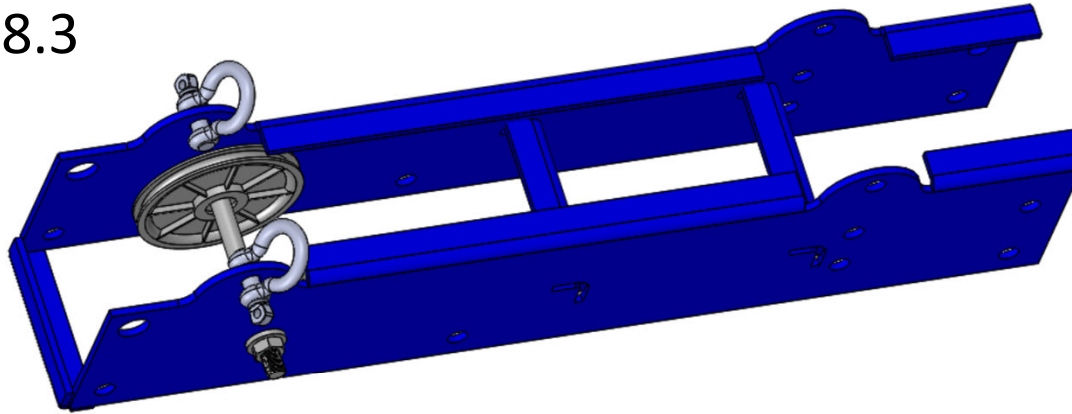


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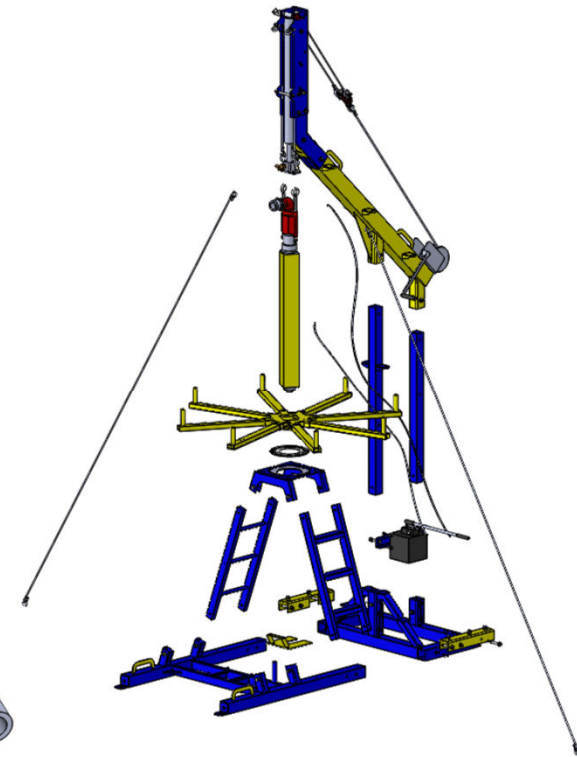
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# CANTILEVER ASSEMBLY KIT

- UPRIGHT RAM HOUSING
- **PART NO. 8.3**
- **QTY. 1 EA.**



- HYDRUALIC RAM
- **PART NO. 8.4**
- **QTY. 1 EA.**

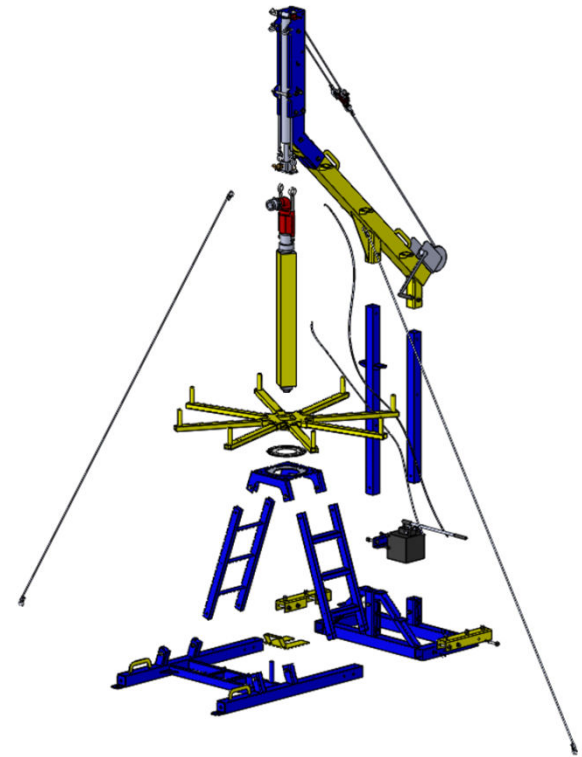
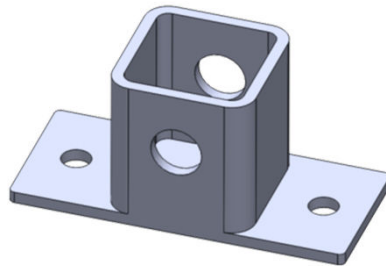
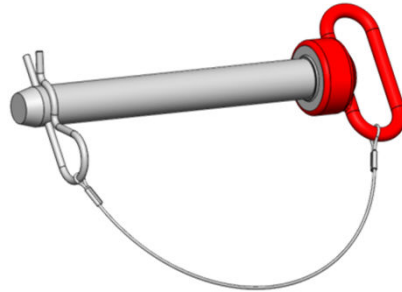


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# CANTILEVER ASSEMBLY KIT

- RAM UPPER PIN
- **PART NO. 8.5**
- **QTY. 1 EA.**
- RAM LOWER CUP
- **PART NO. 8.6**
- **QTY. 1 EA.**
- RAM LOWER PIN
- **PART NO. 8.7**
- **QTY. 1 EA.**

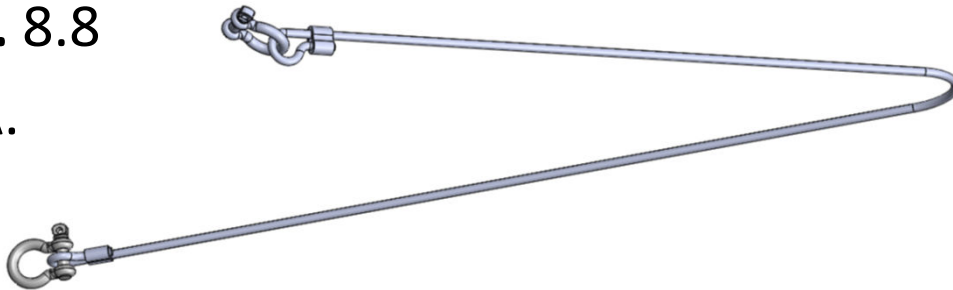


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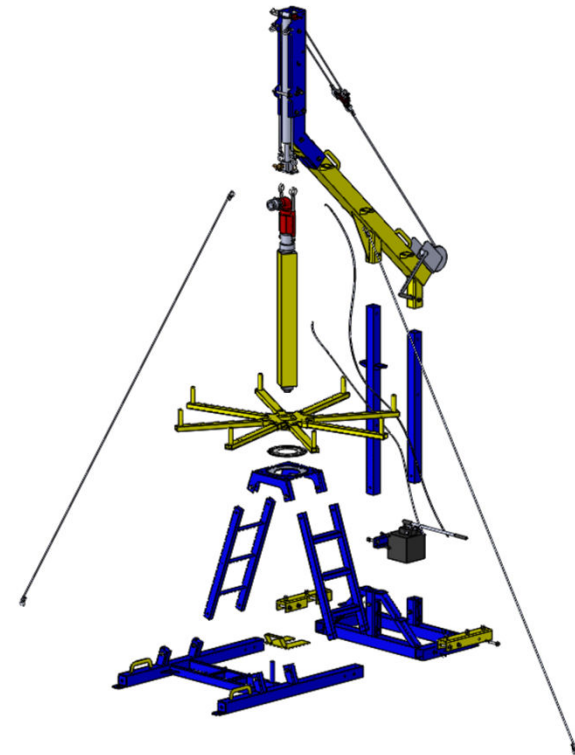
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# CANTILEVER ASSEMBLY KIT

- RAM CABLE
- **PART NO. 8.8**
- **QTY. 2 EA.**



- BOLT, GRADE 8 STEEL, 5/8"-18  
THREAD SIZE, 7-1/2" LONG
- **PART NO. 8.9**
- **QTY. 3 EA.**

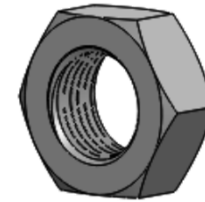


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# CANTILEVER ASSEMBLY KIT

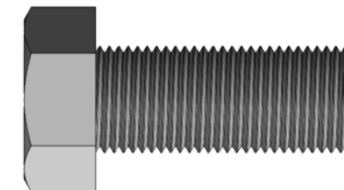
- HEX NUT, GRADE 8, 5/8"-18 THREAD SIZE
- **PART NO. 8.10**
- **QTY. 11 EA.**



- WASHER, 5/8" SCREW SIZE
- **PART NO. 8.11**
- **QTY. 22 EA.**



- HEX HEAD SCREW, GRADE 8 STEEL, 5/8"-18 THREAD SIZE, 1-1/2" Long
- **PART NO. 8.7**
- **QTY. 1 EA.**

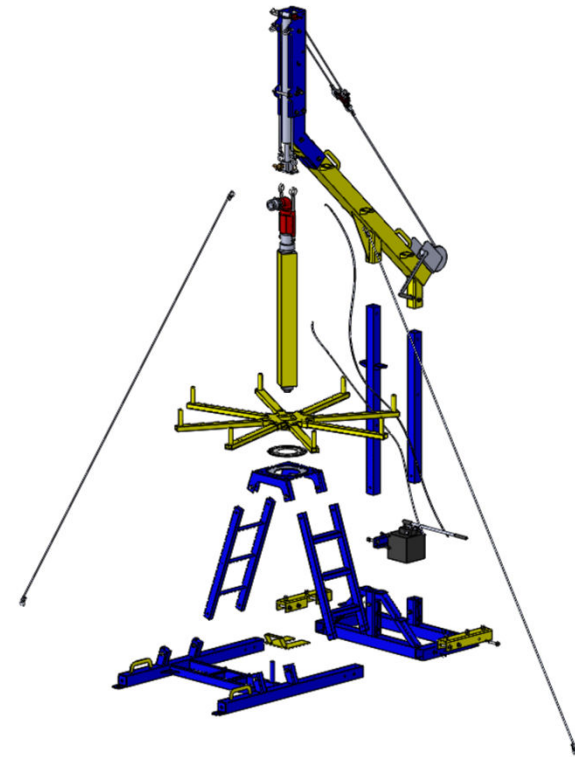
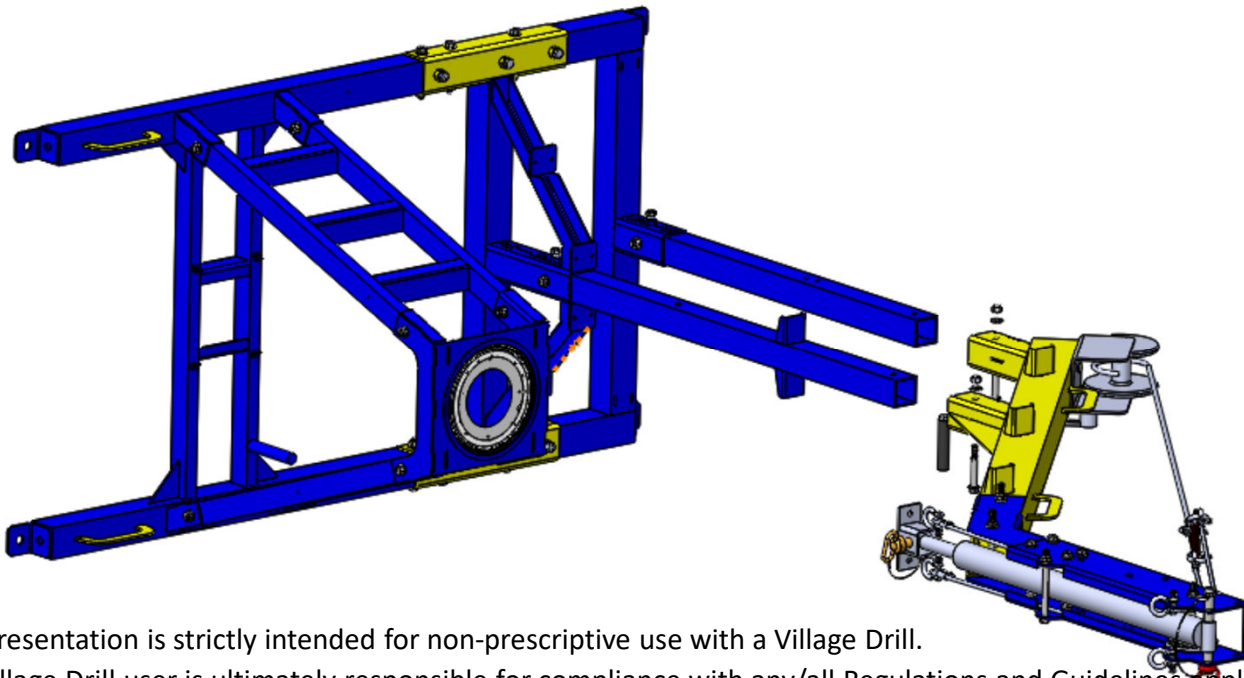


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# ADD CANTILEVER TO BASE

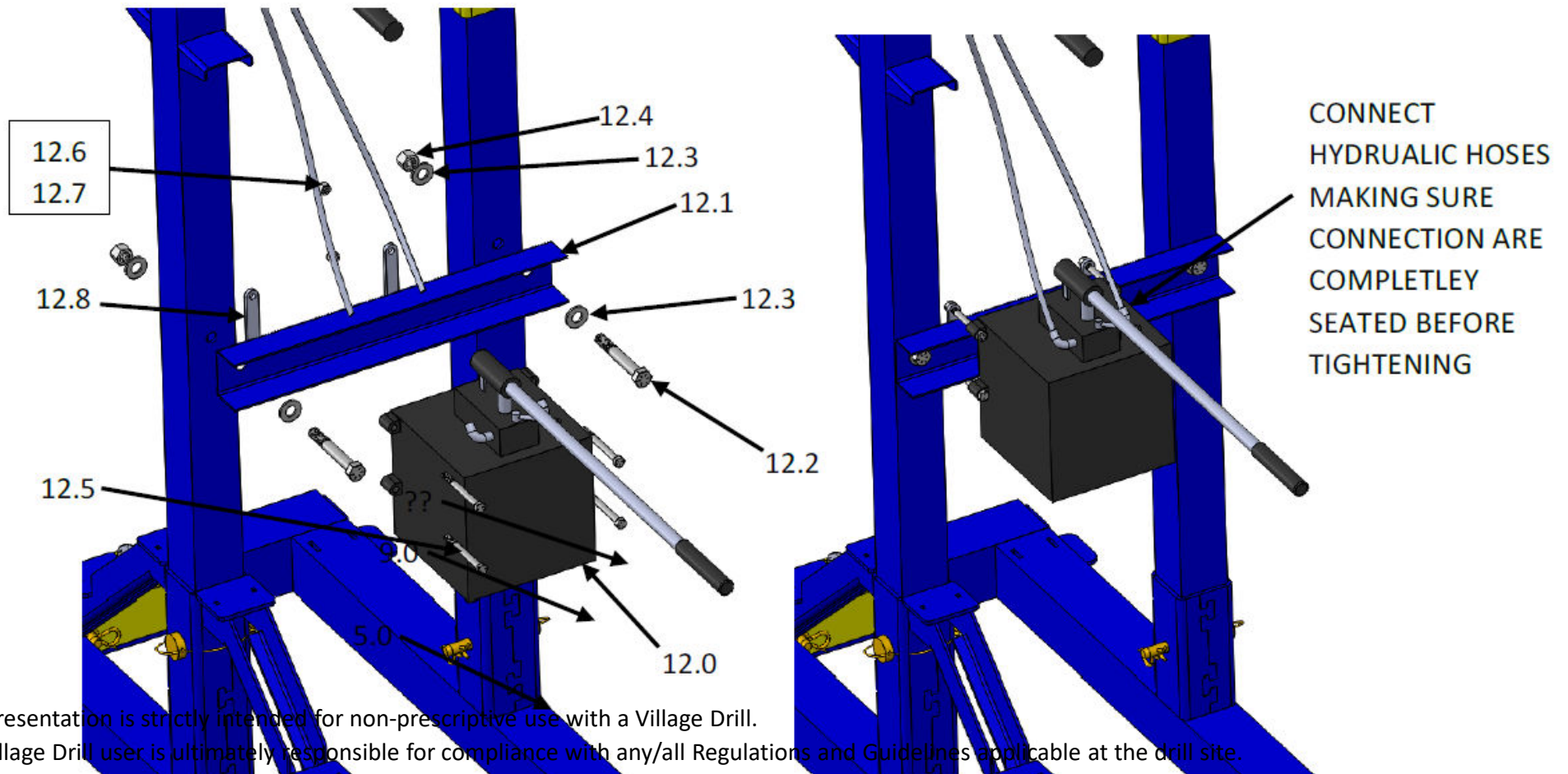
- TIP BASE 90° AND ATTACH CANTILEVER USING TWO BOLTS, WASHERS, AND NUTS AS SHOWN.
- THEN TURN UPRIGHT.



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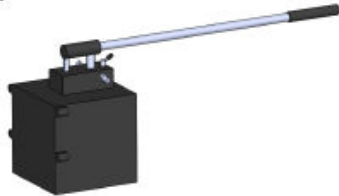







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# INSTALL MANUAL HYDRAULIC PUMP AND MOUNTING BRACKET



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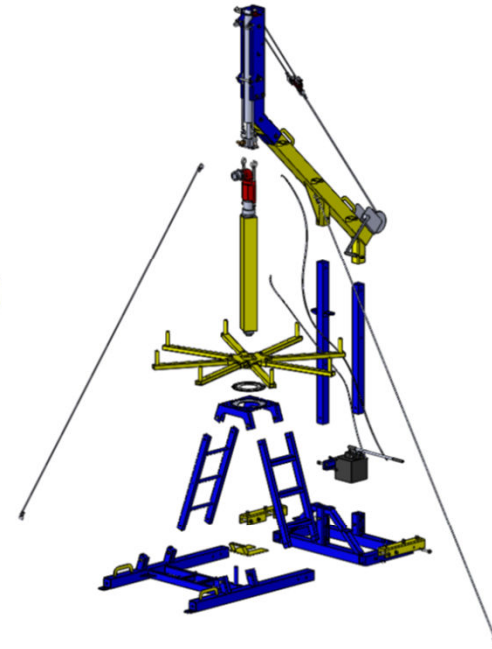
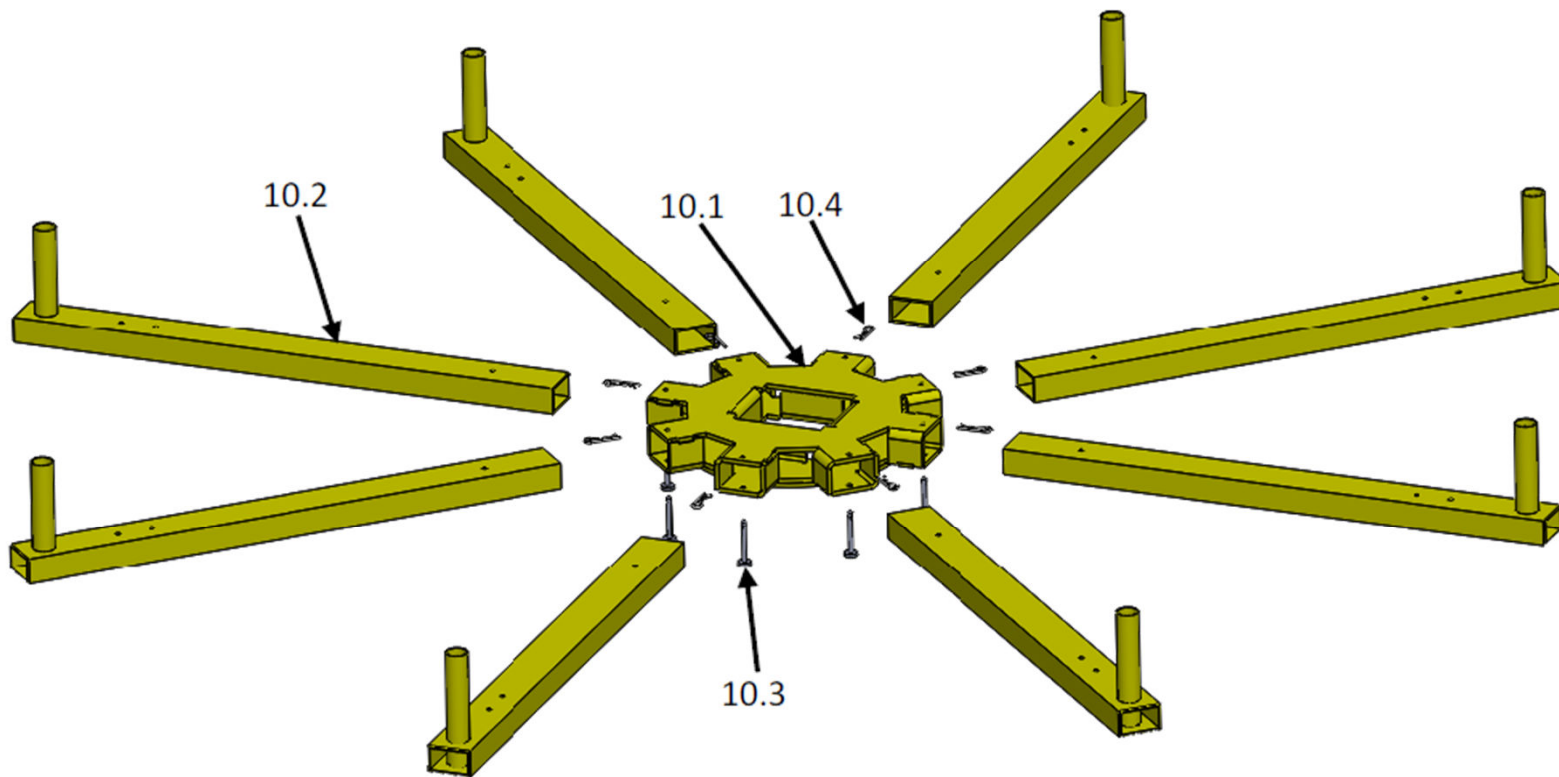
# MANUAL HYDRAULIC PUMP & MOUNTING

PART NO.	QTY.	DESCRIPTION	
12.0	1 EA	HYDRUALIC PUMP	
12.1	1 EA	PUMP MOUNTING BRACKET	
12.2	2 EA	BOLT	
12.3	4 EA	WASHER	
12.4	2 EA	NUT	
12.5	4 EA	BOLT	
12.6	8 EA	WASHER	
12.7	4 EA	NUT	
12.8	2 EA	SMALL BRACKET	

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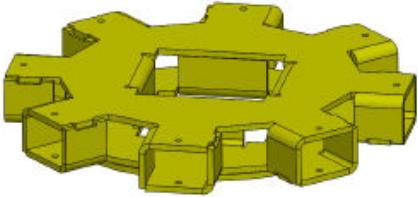
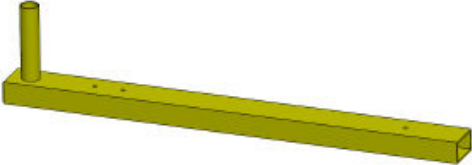


# BUILD WHEEL ASSEMBLY



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# WHEEL ASSEMBLY KIT

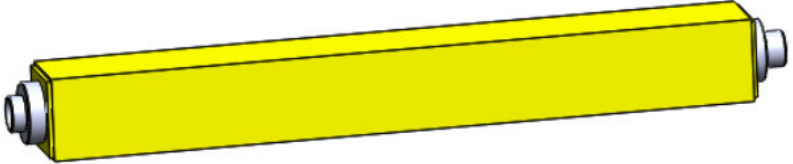
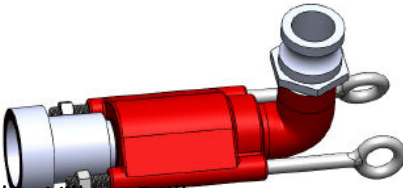
PART NO.	QTY.	DESCRIPTION	
10.1	1 EA.	WHEEL HOUSE CLUSTER	
10.2	8 EA.	SPOKE BAR	
10.3	8 EA.	SPOKE PIN	
10.4	8 EA.	SPOE HAIR PIN	

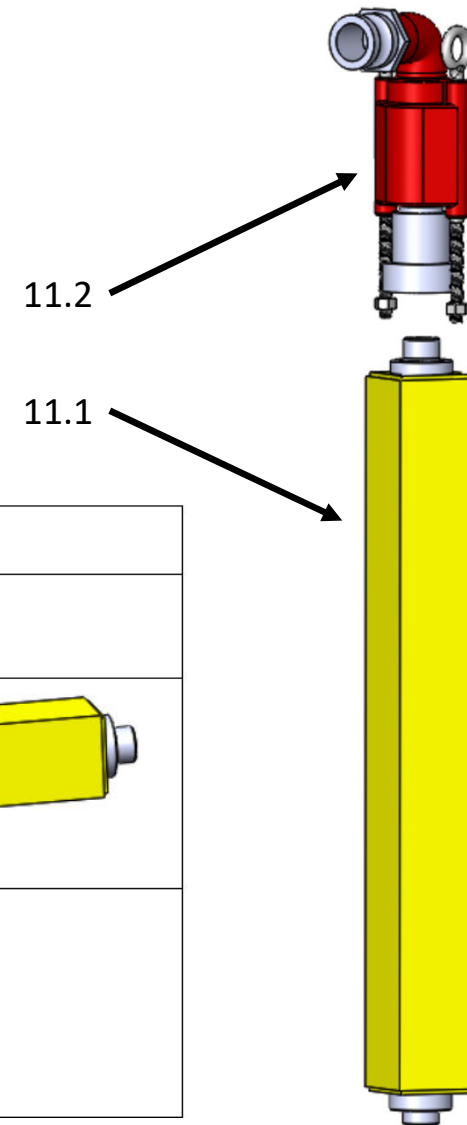
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# KELLY BAR ASSEMBLY



KELLY BAR ASSEMBLY			
PART NO.	QTY.	DESCRIPTION	
11.1	1 EA.	KELLY BAR	
1 1.2	1 EA.	SWIVEL COUPLER	

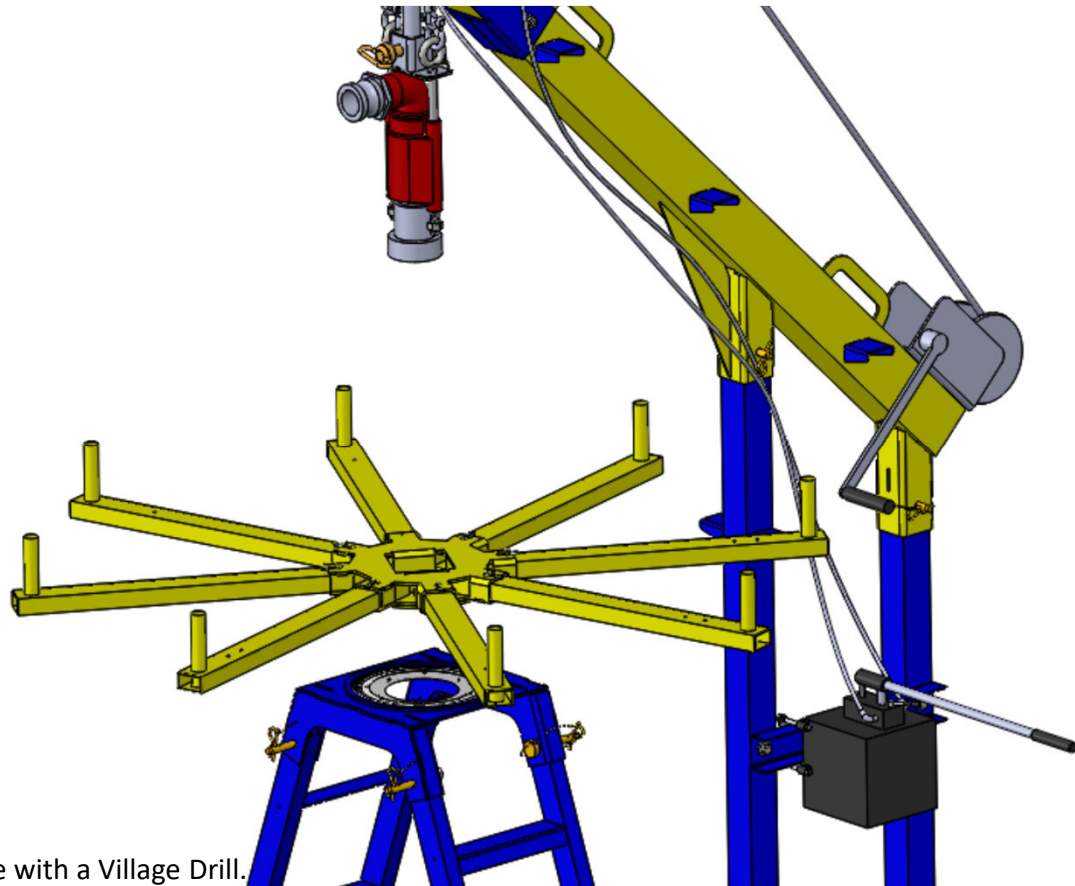


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# OVERALL ASSEMBLY

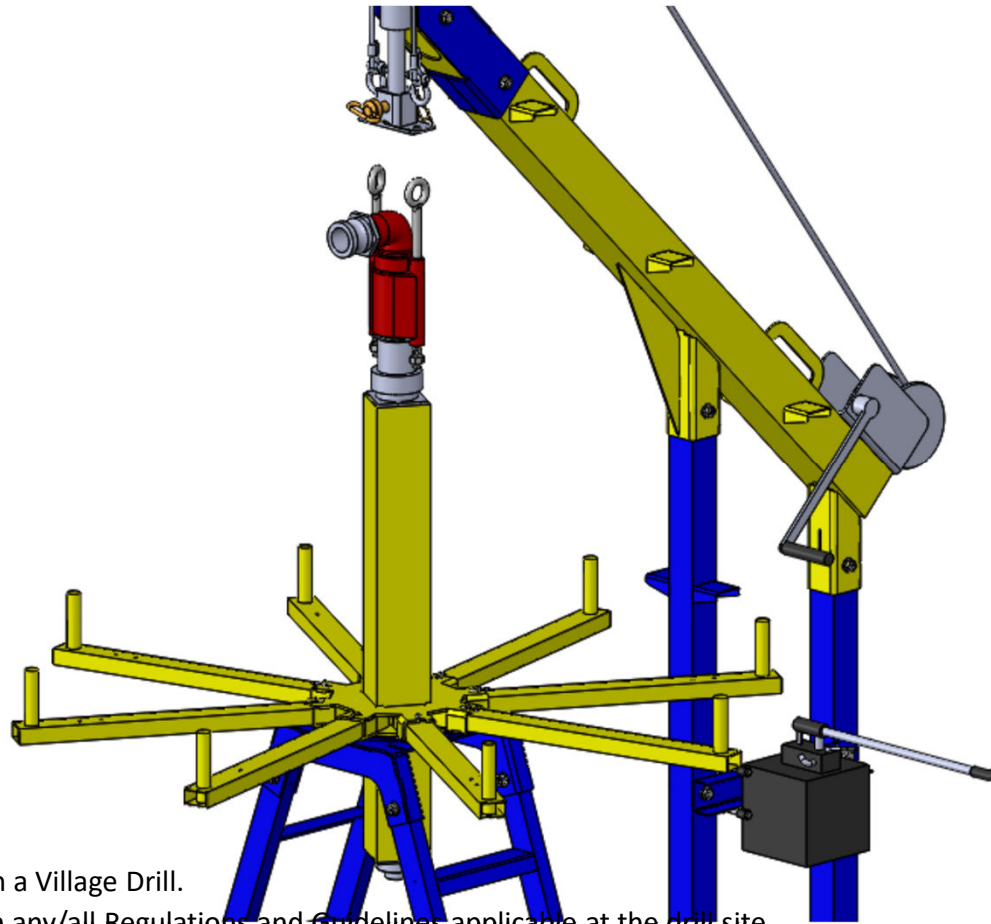
- PLACE WHEEL ASSEMBLY ONTO THE WHEEL SUPPORT.
- MAKE SURE THE WHEEL ASSEMBLY IS RESTING ON THE BEARING.



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# OVERALL ASSEMBLY

- INSERT THE KELLY BAR INTO THE CENTER OF THE WHEEL ASSEMBLY.
- THEN CONNECT THE KELLY BAR TO THE SWIVEL.

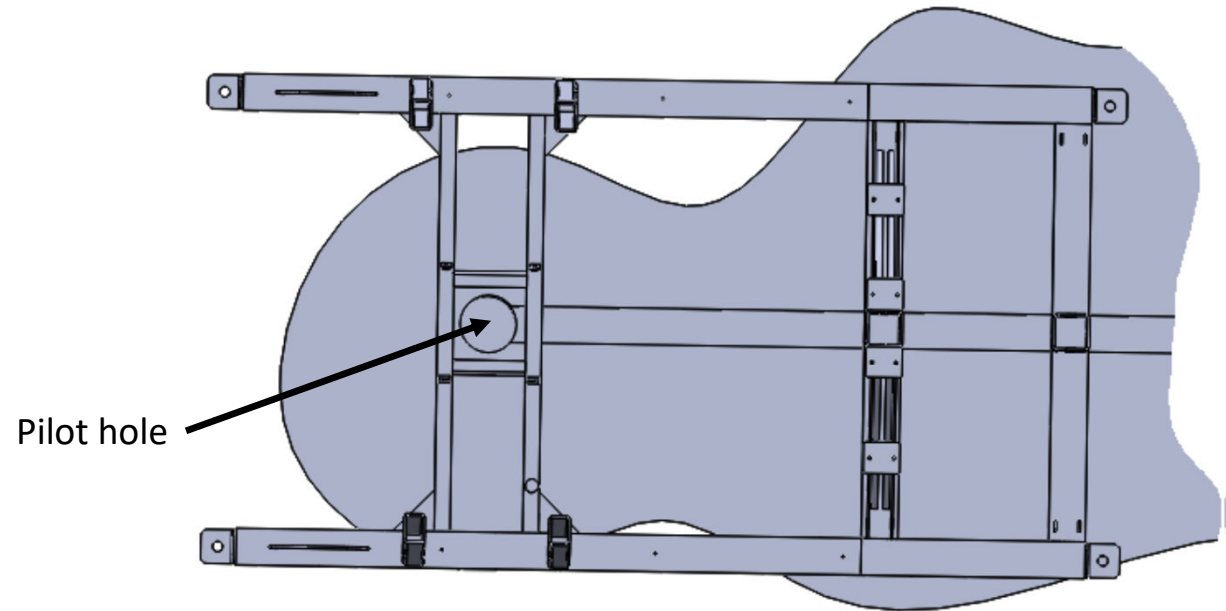


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# OVERALL ASSEMBLY

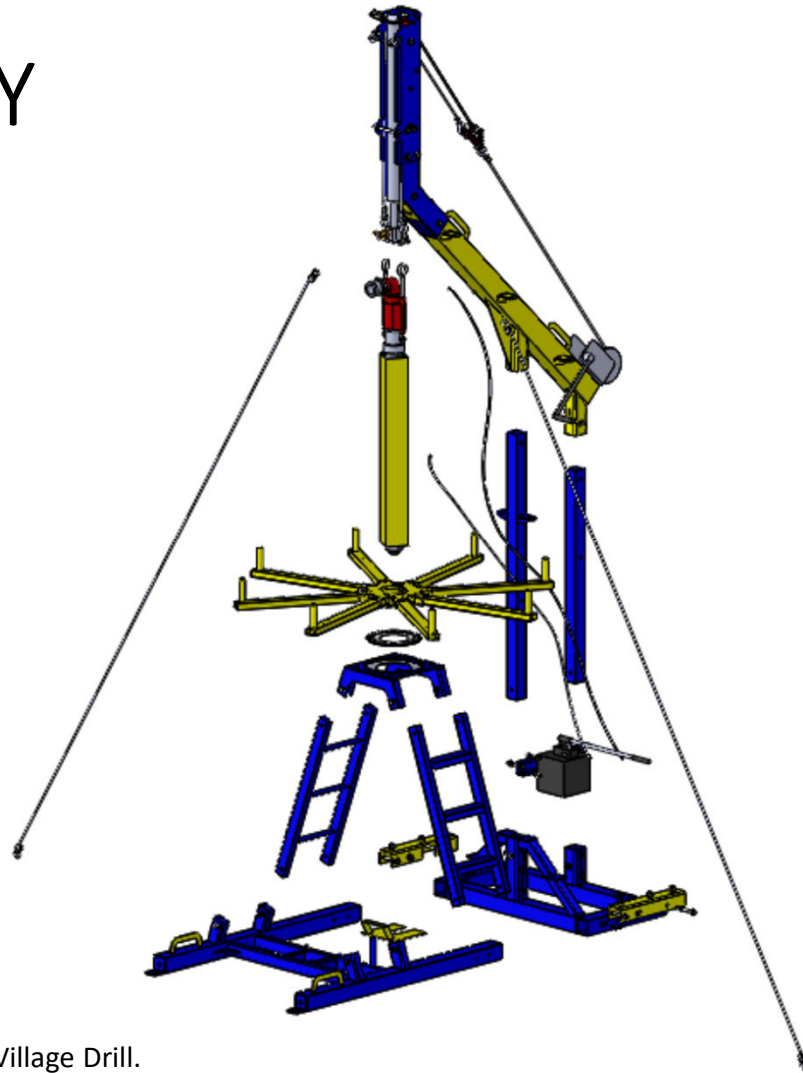
- POSITION OVER  
PILOT HOLE  
ALIGNING SQUARE  
OVER PILOT HOLE.



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# OVERALL ASSEMBLY



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# LAND, TRENCH AND PUMP SETUP

1. Locate the new Water Well with favourable evidence of encountering an aquifer, and avoiding sources of contamination. Clear and level ground where the drill will sit.



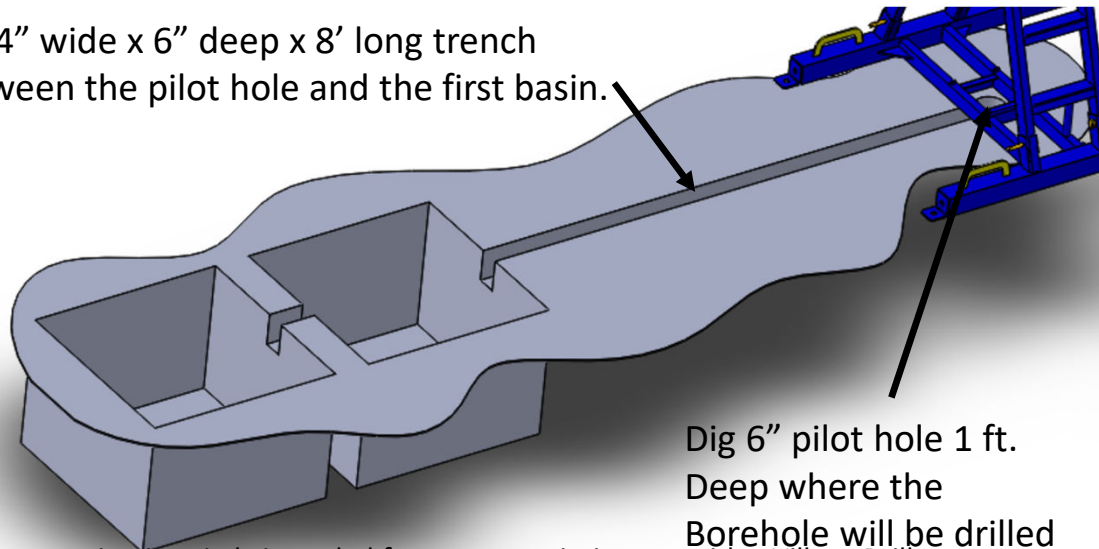
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# LAND, TRENCH AND PUMP SETUP

2. Dig narrow trench from Pilot Hole. At the end of the trench, dig one 3 ft. x 3 ft. x 2 ft. deep basin, and a second 3 ft. x 3 ft. x 2.5 ft. basin, connected by 6" deep trough. The pump will feed from the basin farthest from the drill to the swivel

Dig 4" wide x 6" deep x 8' long trench  
Between the pilot hole and the first basin.

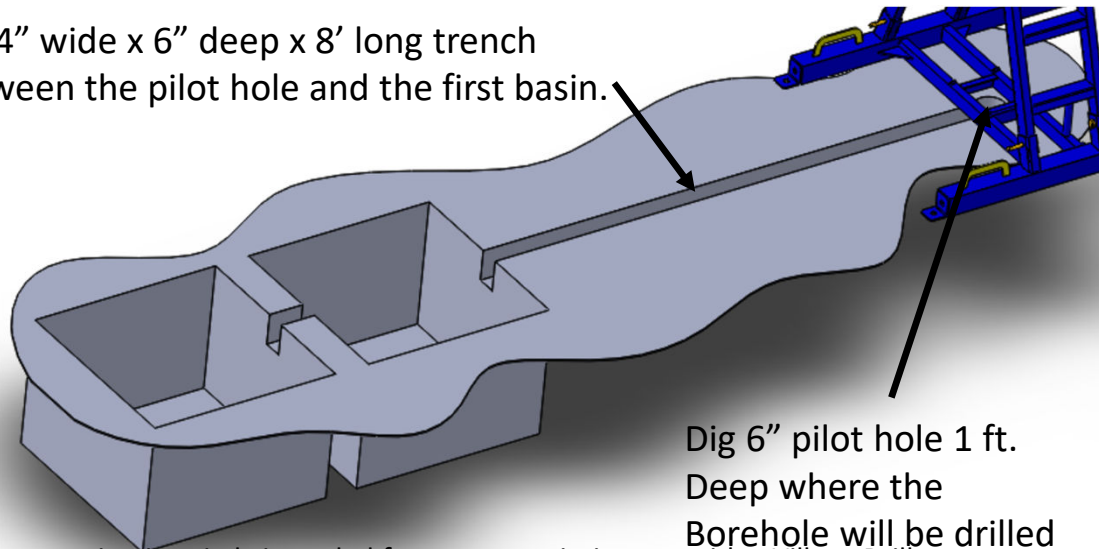


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# LAND, TRENCH AND PUMP SETUP

- *Note: Throughout the digging process, workers may need to remove silt and cuttings that collect in the trench and basins.*
- After structure is assembled, center the square under drill string over the pilot.

Dig 4" wide x 6" deep x 8' long trench  
Between the pilot hole and the first basin.



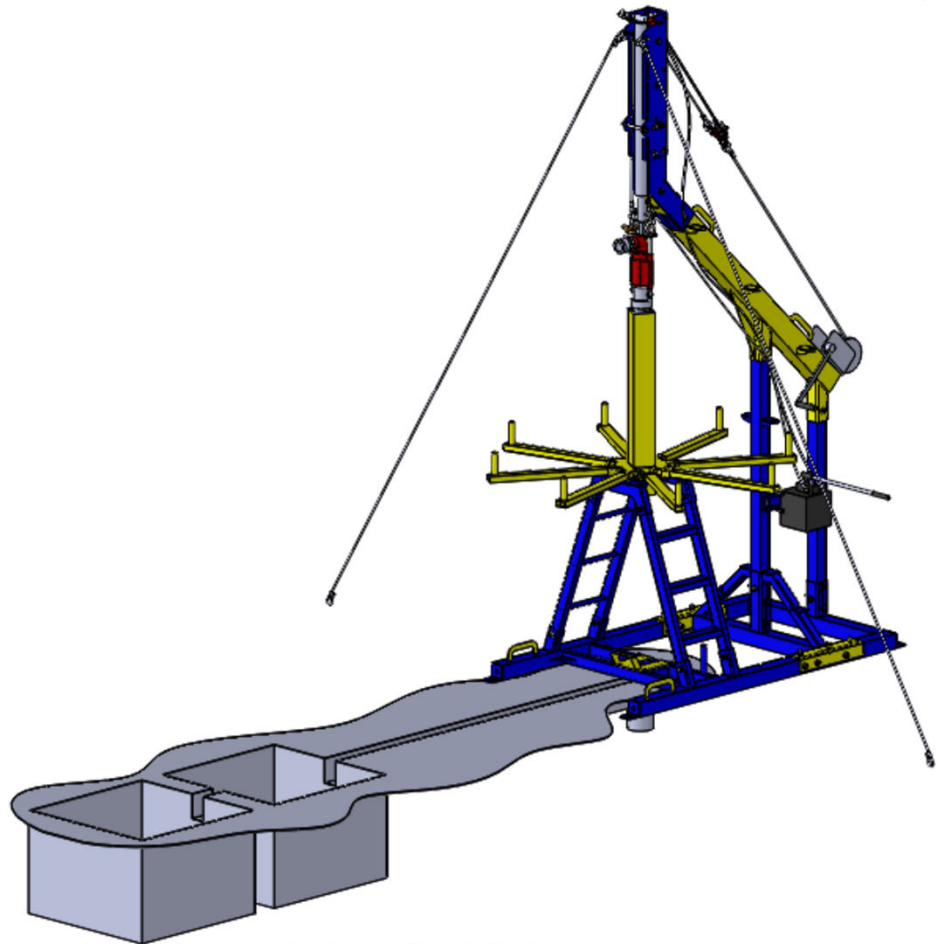
Dig 6" pilot hole 1 ft.  
Deep where the  
Borehole will be drilled



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# LAND, TRENCH AND PUMP SETUP

3. Note: *The structure and wheel may be assembled at the same time as the pump setup shown.*
- Place the pump near the 2nd basin shown above and feed the pump inlet hose into the basin. Ensure that a filter is in place to avoid clogging the pump with small stones. To begin, place the outlet hose inside the pilot hole.



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# LAND, TRENCH AND PUMP SETUP

- Line the trench and basin holes with **Bentonite** and begin filling all holes with water until about 3" from ground level.
- The Bentonite will seal the trench and borehole walls reducing seepage and lowering the risk of down-the-hole cave-in.



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# LAND, TRENCH AND PUMP SETUP

- While the pump is running, cycling the water through the trench and basins, mix in Bentonite near the pump inlet hose, stirring vigorously with a *shovel*. Continue until the slurry is almost as thick as runny yogurt.
- Additional water or Bentonite may need to be added throughout the process to keep a proper slurry mixture.

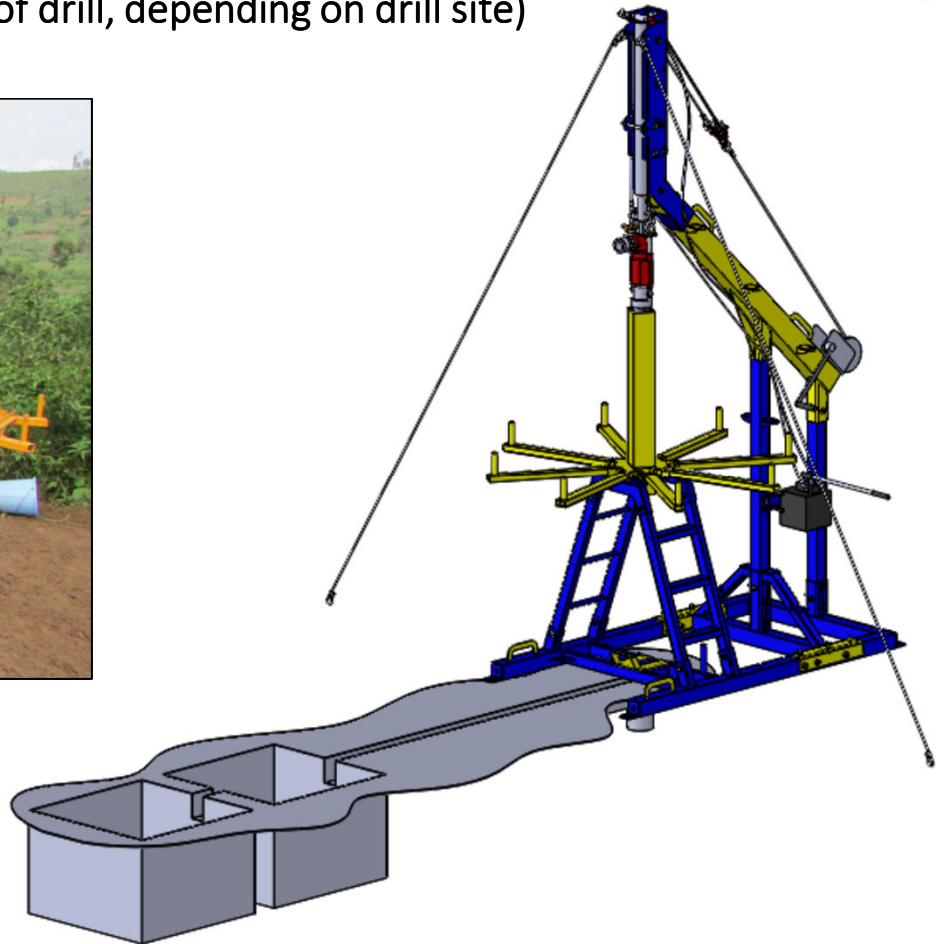


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# LAND, TRENCH AND PUMP SETUP

(Note: sumps may be placed either in front or in back of drill, depending on drill site)



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